RESEARCH IN PROGRESS

A record of subjects taken up for research by scholars
registered for doctoral degrees with the Indian
universities during 1958-66

Vol. 2 BIOLOGICAL SCIENCES

INTER-UNIVERSITY BOARD OF INDIA & CEYLON
NEW DELHI
1968

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NEW DELHI, 1968

Price : Rs. 35.00

Published by the Inter-University Board of India & Ceylon, Rouse Avenue, New Delhi-1
Printed at the Gutenberg Printing Works, Connaught Circus, New Delhi-1

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PREFACE TO VOLUME II

With this Volume, the project 'Research in Progress' takes yet another step forward. Volume I dealt with the Physical Sciences. This one deals with the Biological Sciences. The format and all other details conform to the pattern laid down in Volume I.

We are deeply gratified by the reception given to Volume I and hope that this Volume too will be received equally warmly.

Amrik Singh
Secretary
Inter-University Board of
India & Ceylon

New Delhi,
December 30, 1968.

PREFACE TO VOLUME I

In August 1965 the Board decided to resume publication of its two projects 'Bibliography of Theses Accepted' and 'Research in Progress' which had not been kept up since 1958. While doing so the Board also decided to amend as well as enlarge the scope of both the projects as follows.

One was to bring out a consolidated list of theses, subjectwise, in respect of doctoral degrees conferred by Indian universities since 1857, the year in which the Presidency universities were established. Some information was already available in the Board office but a good deal more had to be collected. As a result of prolonged correspondence with the universities complete data has been collected now and it is in the process of being catalogued and classified. Something like 15,000 entries have been received and it is hoped that beginning with 1969 volumes dealing with the various university disciplines would start appearing one by one. If the present plans do not receive any unexpected setback the whole project should be completed by 1972.

The second project related to the collection of information about 'Research in Progress'. The period from 1958 to 1966 was taken as the base period and wherever it was reported that research on a particular topic was still in progress the same was included. This volume deals only with the physical sciences. Volumes dealing with biological sciences, social sciences and humanities would follow within the next one year.

The information provided in this and the subsequent volumes is complete only to the extent that the universities could be persuaded to make it available. This is only another way of saying that the information provided here covers about two/thirds of those enrolled for their doctoral degrees. All kinds of difficulties were encountered with regard to the collection of data and it is not necessary to go into details here. It is enough to say that the publication of these few volumes from which information about certain universities is missing would have, in future years, a persuasive effect on those who did not respond to our request this time.

It seems appropriate to draw attention to two salient features of the compilation 'a resume of the topic of research' and 'the reference note'. Under resume, a brief note giving the progress made so far as also the possible conclusions proposed to be arrived at are indicated. Not all scholars have supplied these resumes but in most cases they have done so. These were prepared by the scholars themselves and have been duly authenticated by their guides. Since the instructions given in this regard were not complied with in all cases it became necessary to edit them. Something like two/thirds of them have had to be edited in consequence. The editorial changes however do not affect the accuracy of the statements, responsibility for which rests exclusively with the research scholars and their guides.

The reference note added after the resume lists all the papers published by the scholar that have a bearing on his research topic. It is hoped that this note too would be found useful.

I must place on record my appreciation of the able and dedicated work done by our Librarian, Shri Sutinder Singh and his staff in the preparation of these volumes.

Amrik Singh
Secretary
Inter-University Board of
India & Ceylon

New Delhi,
August 6, 1968.

INTRODUCTION

The present volume deals with the Biological Sciences. It lists 1,576 scholars now engaged in research in these subjects. These entries have been classified by the Dewey Decimal Classification (17th Edition) and this governs their general arrangement. The main subject say, Botany, is given at the top in capital letters in the centre of the page. The major divisions of subjects, for instance Spermatophyta, Pteridophyta etc., in case of Botany are again given in the centre of the page but in upper and lower case letters. Subordinate groups of these divisions, like Angiospermae and Gymnospermae in case of Spermatophyta are indicated on the left hand side of the page in upper and lower case letters in bold type. Further subdivisions of these groups, such as, Ranales, Theales, Malvales etc., in case of Angiospermae, are also given on the left hand side in italics. Under these subject headings, the arrangement of entries is, however, alphabetical according to the Surnames of the Scholars. This has primarily been done to facilitate search by the Research Scholars who are expected to be the major users of this bibliography.

With regard to the arrangement, there are, however, two points to which attention is invited. One is the criteria for the eligibility of a heading to be assigned to subdivisions. Normally a heading has been given only if there were atleast three entries to go under it. This has assumed particular importance in the subjects of Botany and Zoology where it was impossible to use a heading for every species. For instance in zoology no heading has been used for the species Porifera and these have been grouped under the general heading Protozoa, Parazoa and Metazoa. Therefore, in the arrangement the Porifera precedes Plasmoderma and Mastigophora whereas in the natural order it should have been the other way round. This explains why in certain cases classification numbers for higher orders of division precede those with lower orders of division as in this case 593·4 comes first in the general grouping under the heading Protozoa, Parazoa and Metazoa and 593.1 indicating Plasmoderma and Mastigophora comes after it.

The second point that needs mention is the arrangement of entries under the subject 'Ayurvedic medicine'. Since the Dewey Decimal Classification, and for that matter the Universal Decimal Classification also, does not include an elaborate classification for the subject, it has only been deemed proper to group the entries according to its conventional branches, like Dravya Guna, Kaya Chikitsa, Prasuti Tantra and Shalya Shalakya.

Each entry includes detailed particulars about the scholar in the following order : Serial number, Name of the scholar, Title of thesis (as registered with the University), Name of the university, Department/Institute where research is being conducted, the years when research was begun and is likely to be finished, Name and designation of the guide, brief resume of the research topic and the Reference Note. Unless otherwise stated immediately after the title of the thesis the degree for which research is being conducted is taken as Ph.D and as such all the entries do not make a mention of this fact.

The serial number consists of two parts. The first is the serial number that runs throughout the length of the publication and is indicative of the total number of entries listed, while the second indicates the serial number of the entries within a particular subject. Thus it should be possible to ascertain as to how many entries are there in a particular subject, say Botany, Zoology or Medicine out of the total number of entries listed. This, we believe, will spotlight the neglected areas of research. While rendering the names of the scholars, the surname has been taken first and is followed by the forename. Abbreviations have been used to render the names of the various universities/institutes. A complete list of these abbreviations along with their expansions is given in the beginning of the compilation. As regards the guides under whom research is being conducted, information has been provided in the majority of the cases. The word 'independently' has been used to denote cases where the scholars have been exempted from conducting research under a guide. But in cases where no such information was available the letters 'n.g.' (No guide) have been used to say that the information about the guide is not available. The designation given after the name of the guide has reference to the department of the university in which the research is being conducted. In cases where the guide does not belong to this department of the university, complete address has been given to facilitate exchange of information. In a few cases, however, where the information about the designation of the guide was not forthcoming, we had to be content with the name of the guide only. The brief resume included in each entry is a statement of the progress made so far. It also points to the possible conclusions that are likely to be arrived at. The Reference note lists all the papers published by the scholars that have a bearing on the topic of research. The information included in the Reference Note is given in the following order : Title of the paper, if supplied, joint authors, if any, name of the periodical, volume and issue number, the year and inclusive pagination. The names of the periodicals have also been abbreviated and these abbreviations along with their expansions are listed after the abbreviations for universities/institutes. The brief resume together with the Reference Note will, we hope, be found useful by the users of this bibliography and will elucidate the perspective in which a particular piece of research is being carried out.

The index of scholars also calls for a word of explanation. It is arranged alphabetically according to the surnames of the scholars. But a significant departure from strict alphabetization consists in grouping together the surnames pronounced alike. For instance, under Chakrabarti, are listed all the variants, like Chakraborty, Chakravarty, Chakravorti etc. These are arranged in the alphabetical order of their initials. The index directs the user to the Subject Part with the help of the running serial number of entries. An alphabetic subject index has also been included to facilitate reference.

It has been our endeavour to arrive at the maximum degree of specificity of subject to the extent it was possible with the Dewey Decimal Classification. In actual practice, however, a very thorough use has been made of the fascicules of the Universal Decimal Classification, wherever available, and in their absence the 8th Abridged Edition of the Universal Decimal Classification has been used extensively for the identification of various topics. This was necessary because the subject matter of our projects comprised highly specialised aspects of various disciplines which did not figure in the schedules of Dewey Decimal Classification. After identification these were then related to the concepts available in the Dewey Decimal Classification for after all Universal Decimal Classification is but an extension of the Dewey Decimal Classification. The classification number has also been given at the bottom of each entry on the extreme right hand side. Maybe some colleagues in the profession find it useful.

My colleagues have cheerfully borne long and late hours of work in the preparation of this volume. I am thankul to :

Miss Kanwal Ashta for her assistance in the processing of the information received from the universities ;

Mr. V. K. Chugh and Mrs. C. K. Arora for the patient and skillful typing of the manuscript ; and

Mr. B. Narayana Rao and Mr. S. M. Dhawan for their help in the preparation of the final typescript and in correcting the proofs.

SUHINDER SINGH

Inter-University Board
of India & Ceylon,
New Delhi,
December 30, 1968.

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ABBREVIATIONS USED

A. Universities/Institutes

Agra	Agra University
Agrl. Sci., Hebbal	University of Agricultural Sciences, Hebbal (Bangalore)
Aligarh	Aligarh Muslim University
Allahabad	University of Allahabad
Annamalai	Annamalai University
B.I.T.S., Pilani	Birla Institute of Technology & Science, Pilani
Banaras	Banaras Hindu University
Bangalore	Bangalore University
Baroda	M. S. University of Baroda
Bhagalpur	Bhagalpur University
Bombay	University of Bombay
Calcutta	University of Calcutta
Darbhanga	K. S. Darbhanga Sanskrit University
Delhi	University of Delhi
Gauhati	Gauhati University
Gorakhpur	University of Gorakhpur
Gujarat	Gujarat University
I.A.R.I., Delhi	Indian Agricultural Research Institute, Delhi
I.I.S., Bangalore	Indian Institute of Science, Bangalore
I.I.T., Kharagpur	Indian Institute of Technology, Kharagpur
Indore	University of Indore
J.N.K.V., Jabalpur	Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur
Jabalpur	University of Jabalpur
Jadavpur	Jadavpur University
Jammu & Kashmir	University of Jammu & Kashmir
Jodhpur	University of Jodhpur
Kalyani	University of Kalyani
Karnatak	Karnatak University

Kerala	University of Kerala
Madras	University of Madras
Madurai	Madurai University
Magadh	Magadh University
Marathwada	Marathwada University
Mysore	University of Mysore
Nagpur	Nagpur University
Osmania	Osmania University
Panjab	Panjab University
Patel	Sardar Patel University
Poona	University of Poona
Punjab Agrl.	Punjab Agricultural University
Punjabi	Punjabi University
Rajasthan	University of Rajasthan
Ravishankar	Ravishankar University
Shivaji	Shivaji University
Udaipur	University of Udaipur
Venkateswara	Sri Venkateswara University
Vikram	Vikram University

B. Periodicals

Acta Histochem.	Acta Histochemica.
Amer. Jour. Clin. Nutr.	American Journal of Clinical Nutrition.
Anal. Biochem.	Analytical Biochemistry.
Ann. Ent. Soc.	Annals of Entomological Society of America, College Park.
Appl. Microbiol.	Applied Microbiology.
Arch. Biochem. Biophys.	Archives of Biochemistry and Biophysics.
Aust. Jour. Bot.	Australian Journal of Botany.
Biochim. Biophys. Acta.	Biochimica et Biophysica Acta.
Biochem. Jour.	Biochemical Journal.
Bot. Mag.	Botanical Magazine.
Bull. Bot. Soc. Coll. Sci. Nagpur.	Bulletin, Botanical Society, College of Science, Nagpur.
Bull. Bot. Surv. India.	Bulletin, Botanical Survey of India, Calcutta.
Bull. Dept. Mar. Biol. Oceanogr. Uni. Kerala.	Bulletin, Department of Marine Biology and Oceanography, University of Kerala.

Can. Jour. Biochem.	Canadian Journal of Biochemistry.
Chem. & Ind.	Chemistry and Industry.
Curr. Sci.	Current Science.
Fol. Biol.	Folia Biologica.
Ind. For.	Indian Forester.
Ind. Jour. Agrl. Sci.	Indian Journal of Agricultural Science.
Ind. Jour. Agron.	Indian Journal of Agronomy.
Ind. Jour. Biochem.	Indian Journal of Biochemistry.
Ind. Jour. Chem.	Indian Journal of Chemistry.
Ind. Jour. Ent.	Indian Journal of Entomology.
Ind. Jour. Exp. Biol.	Indian Journal of Experimental Biology.
Ind. Jour. Hel.	Indian Journal of Helminthology.
Ind. Jour. Med. Res.	Indian Journal of Medical Research.
Ind. Jour. Path. Bact.	Indian Journal of Pathology and Bacteriology.
Ind. Vet. Jour.	Indian Veterinary Journal.
Int. Soc. Sug. Tech. Sug. Bre. Newsletter.	International Society of Sugarcane Technologists and Sugarcane Breeders' Newsletter.
Jour. Anim. Morphol. Physiol.	Journal of Animal Morphology and Physiology.
Jour. Annamalai Uni.	Journal of the Annamalai University.
Jour. Bio. Sci.	Journal of Biological Sciences.
Jour. Bombay Nat. Hist. Soc.	Journal of the Bombay Natural History Society, Bombay.
Jour. Chrom.	Journal of Chromatography.
Jour. Gen.	Journal of Genetics.
Jour. Hel.	Journal of Helminthology.
Jour. Histochem. Cytochem.	Journal of Histochemistry and Cytochemistry.
Jour. IIS.	Journal of Indian Institute of Science, Bangalore.
Jour. Ind. Bot. Soc.	Journal of Indian Botanical Society, Madras.
Jour. Ind. Chem. Soc.	Journal of Indian Chemical Society, Calcutta.
Jour. Linn. Soc. (Bot.).	Journal of the Linnean Society of London, (Series in Botany).
Jour. Mari. Bio. Assn. India.	Journal of the Marine Biological Association of India, Madras.
Jour. Nutr. & Diet.	Journal of Nutrition and Dietary.
Jour. Postgrad. Med.	Journal of Postgraduate Medicine.
Jour. Roy. Micros. Soc.	Journal of Royal Microscopical Society, London.

Jour. Sci. Ind. Res.	Journal of Scientific & Industrial Research.
Kashmir Sci.	Kashmir Science.
Labdev Jour. Sci. Tech.	Labdev Journal of Science and Technology.
Marathwada Uni. Jour.	Marathwada University Journal.
Micropal. ij Cyto.	Micropalaeontology ij Cytologia.
Mycopath. et Myc. App.	Mycopathologia et Mycologia Applicata.
Naturwiss.	Naturwissenschaften.
New Phyt.	New Phytologist.
Osterr. Bot. Z.	Osterreichische Botanische Zeitschrift.
Phytopath. Z.	Phytopathologische Zeitschrift.
Poona Agrl. Coll. Mag.	Poona Agricultural College Magazine.
Proc. IAS.	Proceedings of the Indian Academy of Sciences, Bangalore.
Proc. Ind. Sci. Cong.	Proceedings of Indian Science Congress Association, Calcutta.
Proc. NAS.	Proceedings of the National Academy of Sciences of India, Allahabad.
Proc. NIS.	Proceedings of the National Institute of Sciences of India, New Delhi.
Proc. Soc. Exp. Biol. Med.	Proceedings of the Society of Experimental Biology and Medicine, New York.
Prog. Biochem. Pharmacol.	Progress in Biochemistry & Pharmacology.
Rev. D'Ecol. et Biol du Sol.	Revue D' Ecologie et de Biologie du Sol.
Sci. & Cul.	Science & Culture.
Sen. Bio.	Senckenbergiana Biologica.
Tet. Let.	Tetrahedron Letters.
Trans. Amer. Micros. Soc.	Transactions of the American Microscopical Society, Lawrence.
Trans. Faraday Soc.	Transactions of the Faraday Society, Aberdeen.
Z. für Bot.	Zeitschrift für Botanische.
Z. für pflan.	Zeitschrift für pflanzenphysiologie.
Zoo. Anz.	Zoologischer Anzeiger.

PALEONTOLOGY

Stratigraphy

1.1 Badam, G. L. Stratigraphy and paleontology of Karewas of Kashmir with particular reference to V. fossils. Panjab, Geology, 1966-68. Khan, E., Curator.

The geology of the area has been studied in detail, especially where the exposures are in the form of plateaus. The area north-west of Srinagar has been mapped and a good collection of fossils made. In the laboratory, a few slides of the rock formations of the area have been studied.

560.17

2.2 Butt, Ch. M. Investigation of plant remains recovered from archaeological excavation. Aligarh, Botany, 1966-69. Chowdhry, K.A., Professor and Head of the Department.

560.17

3.3 Guha, Asit Kumar. Micropaleontology and stratigraphy of Bagh beds, Madhya Pradesh. I. I. T., Kharagpur, Geology & Geophysics, 1965-69. Bagchi, T. C., Professor and Head of the Department.

The paleontologic study of microfossils has been undertaken with special reference to ostracoda and smaller foraminifera. The petrographic study of the sedimentaries, their classification, genesis and environments of deposition has been completed. The study on the upper cretaceous biostratigraphy, paleogeography and paleoecology of lower Narmada Valley region is in progress.

560.176

4.4 James, Indira. Microfossils of South Indian lignites. Osmania, Botany, 1966-69. Ramanujam, C. G. K., Lecturer.

560.178

5.5 Khosla, S. C. A study of microfossils from the eocene beds, Rajasthan. Panjab, Geology, 1965-67. Bhatia, S. B., Reader.

560.178

6.6 Mathur, N. S. Biostratigraphy of the Subathu beds (Eocene) Simla Hills. Panjab, Geology, 1964-67. Bhatia, S. B., Reader.

A detailed mapping around Subathu has been carried out. A large collection of fossils, both mega and micro, has been made and a number of species have been identified.

560.178

7.7 Raghu Rama Rao, M. Studies on the tertiary plant fossils of South India. Osmania, Botany, 1965-69. Ramanujam, C. G. K., Lecturer.

The work deals with xylotomical studies of tertiary woods from South India. The silicified woods from the Cuddalore sand stones—mio-pliocene—are being investigated.

(1) The occurrence of cynometroxyion indicium from the Cuddalore sand stone series. (with C. G. K. Ramanujam). Curr. Sci. 35: p.158-159; and (2) A fossil wood resembling Bauhinia from the Cuddalore sand stone series of South India. (with C. G. K. Ramanujam). ibid. 35 : p. 575-577.

560.178

8.8 Rama Shankar Singh. Stratigraphical correlation of Indian coal seams based on the distribution of microfossils. Allahabad, Botany, 1965-69. Pant, Divya Darshan, Professor and Head of the Department.

The coal samples obtained from various coal fields are being analysed for a detailed study of their microfossil contents and determination of their vertical and horizontal distribution. The photomicrographs of the interesting sporomorphs have been taken and their camera lucida drawings are being made. Work on some Lower Gondwana wood compression is also in progress.

560.17

9.9 Srivastava, Gopal Krishna. Comparative studies of fossil plant structures and their use in geological correlations. *D. Sc.* Allahabad, Botany, 1962-70. Pant, Divya Darshan, Professor and Head of the Department.

Miospores from Brazil and salt range of Panjab have been studied and the reproduction of Indian Jsoetes has been worked out. Further study on the Jurassic flora is in progress. The vertical and horizontal distributions of the various forms will be worked out statistically and utilized in the correlation of various coal seams.

(1) Further observations on some triassic plant remains from the salt range, Panjab. Palaeontographica. 114B ; 1964 : p.79-93 ; and (2) Some Lower Gondwana miospores from Brazil. Micropal. ij. Cyto. 30(3); 1965 : p. 239-251.

560.176

Paleobotany

Regional Paleobotany

10.10 Kidwai, Parveen Fatima. Structural studies of some Indian living and fossil plants. Allahabad, Botany, 1963-67. Pant, Divya Darshan, Professor and Head of the Department.

Anatomical investigations, including developmental studies of various plants belonging to both monocots and dicots as well as some pteridophytes, are being carried out. Morphological and anatomical studies of some fossil compressions collected from the Karharbari stage of the Lower Gondwanas are also in progress.

(1) Curr. Sci. 33(21) ; 1964 : p.653-654 ; (2) ibid. 37(8) ; 1965 : p.260-261 ; (3) Proc. Ind. Sci. Cong. 1965 : p.356-357 ; (4) Proc. NIS. 31B(1&2) ; 1965 : p.54-66 ; and (5) New Phyt. 65(3) ; 1966 : p.288-295.

561.19542

11.11 Kunwar, Bahadur Singh. Studies on the morphology of fossil and living plants. Allahabad, Botany, 1964-68. Pant, Divya Darshan, Professor and Head of the Department.

Morphological and anatomical studies of compressions collected from the Lower Gondwanas of India are in progress to establish their taxonomic characters. As the study of living plants usually supplement interpretations in fossil studies, some relevant living plants will also be studied.

561.19542

12.12 Nautiyal, Devendra Datt. Morphology of some Indian living and fossil plants. *D. Sc.* Allahabad, Botany, 1962-70. Pant, Divya Darshan, Professor and Head of the Department.

Morphological and anatomical studies have been made in 31 species of recent cycadales. The structural details of the following Indian Lower Gondwana compressions have been investigated: Maheshwarialls bigornuts Gen. et. sp. now a gymnospermous seed; Buriadia heterophylla (feistmantel) Seward and Sahni—a conifer-like shoot; Raniganjia (actinopteris) bengalensis (feistmantel) Rigby—an attached or detached leaf sheath of speenopside affinities and attached or detached ottokaria-like seed bearing fructifications. The work on some Lower Gondwana fructifications and the ovules of gnetales is in progress.

(1) Some seeds and sporangia of glossopteris flora

from Raniganj coalfield, India. Palaeontographica. 107B ; 1960 : p.41-64 ; (2) Cuticle and epidermis of recent cycadales: Leaves, sporangia and seeds. Sen. Bio. 44(4) ; 1963 : p.257-347 ; (3) Seed cuticles in some modern cycads. Curr. Sci. 31(2) : 1962 : p.75 ; (4) On the anatomical structure of pinnae of some species of cycas L. ibid. 32(5) ; 1963 : p.232-234 ; (5) Epidermal structure of pinnae of macrozamia miq. ibid. 32(6) ; 1963 : p.280-281; (6) The epidermal structure of sporangia of some modern cycads. ibid. 32(12) ; 1963 : p.559-561 ; (7) On Maheshwariella bicornuta ge. et sp. nov., a compressed seed from Lower Gondwana of Karharbari coalfield, India. Jour. Ind. Bot. Soc. Maheswari Commemoration Volume ; 1963 : p.150-158 ; and (8) Some seed bearing ottokaria-like fructifications from India. Nature. 207 ; 1965 : p.623-624.

561.19542

Paleozoology

Mollusca & Moluscoidea

13.13 Ghosh, Diptendu Narayan. Jurassic Rhynchonellidae from Jumara, Nara and Keera Domes, Kutch. Jadavpur, Geological Sciences, 1963-67. Mitra, Karun C., Lecturer.

A scheme of classification of Rhynchonelid brachiopods from the Kutch Mesozoic has been built up. The systematic descriptions of these animals have been revised, and a genetic connection between different genera and species has been attempted.

564.8

ANTHROPOLOGY

Physical Anthropology

14.1 Lakhbir Singh. Growth and development of primates with special reference to Macaca mulatta and Presbytis entellus. Panjab, Anthropology, 1964-68. Chopra, Shiv Raj Kumar, Reader and Head of the Department.

Somatometric observations and osteometric measurements have been taken on live as also the skeletal material of Macaca mulatta and Presbytis entellus to study the growth and development of primates in the cross sectional way. Observations have so far been made on fifty Macaca mulatta and twenty Presbytis entellus. It is proposed to carry out research on about 200 different primates.

573

Organic Evolution

Variation

15.2 Bhaskara Rao, M. Genetic survey among the Tamilian Brahmins. Delhi, Anthropology, 1965-68. Biswas, P. C., Professor and Head of the Department and Tiwari, S. C., Lecturer.

It is proposed to study blood groups, P. T. C., colour-blindness, haptoglobins and transferrins among the Tamilian Brahmins. There are two sub-castes, Aiyers and Aiyengars, among the Tamilian Brahmins. The Aiyers are divided into 4 sects—Brihacharanam, Vadama, Ashtasahasram and Vattiman. Aiyengars are divided into 2 sects—Vadojalai and Thengalai. Survey will be conducted of all the sects.

573.221

16.3 Gadkari, Neela. A study of the plasma proteins—Haptoglobins—among the Maharashtrians. Delhi, Anthropology, 1962-67. Biswas, P. C., Professor and Head of the Department.

Five endogamous Maharashtrian groups—Kokanasth Brahmans, Desasth Rigvedi Brahmans, Karhadi Brahmans, Gaud Saraswat Brahmans and Chandraseniya Kayasth Prabhu—are being studied for certain endogamous groups, like ABO, A_1A_2BO, Rh, MN, MNS_8, and

Kellcellano blood groups respectively, ABH secretor factor, taste sensitivity to phenyl thiocarbamide or P. T. C., colour vision and the haptoglobin variants.

573.221

17.4 Khullar, Parmod. Genetic study of the Sindhis of Delhi. Delhi, Anthropology, 1965-68. Biswas, P. C., Professor and Head of the Department and Tiwari, S. C., Lecturer.

It is proposed to investigate the genetic variability present in Sindhi population by studying serum proteins and haemoglobin variants, blood groups, P. T. C. taste sensitivity, colour-blindness, palmar dermatoglyphics and finger dermatoglyphics.

573.221

18.5 Taneja, Kusum. Correlation of axial triradius with PFI, angle atd and t-index in palmar dermatoglyphics of Jat Sikh and Punjabis-Khatris and Arora. Delhi, Anthropology, 1965-68. Biswas, P. C., Professor and Head of the Department and Sharma, A., Lecturer.

The study comprises detailed metric analysis of palmar impressions of 500 individuals—Jat Sikhs, Khatris and Aroras. Different correlations are proposed to be calculated between these metric traits e.g. between PFI on print and on living, between maximal angle atd and t-index, cotangent scale of angle atd and t-index, PFI and maximal angle atd and t-index etc., and deviation quotients.

573.221

Anthropometry

19.6 Biswas, Nivedita. Physique of Delhi college girls. Delhi, Anthropology, 1965-68. Monga, I. P. S., Reader.

The study is confined to the Punjabi girls of the age group 17-20 years. Their length, girth and weight measurements are being considered.

573.6

20.7 Claire, Harjit. To compare Rajputs, Jats and Gujars anthropometrically. Delhi, Anthropology, 1965-68. Biswas, P. C., Professor and Head of the Department.

The study is confined to Punjabis only. Body measurements of people at different socio-economic levels are being taken. Their diet and place of origin are also being considered to determine the physical similarities, if any.

573.6

21.8 Ghosh, Rekharani. Variations and growth of the external ear in the Bengalees. Calcutta, Anthropology, 1962-67. Sarkar, S. S., Lecturer.

573.685

22.9 Kalla, Aalok Kumar. Effect of ultraviolet rays on skin pigmentation, skin reflectometry and inheritance of skin colour in Punjabis. Delhi, Anthropology, 1964-67. Biswas, P. C., Professor and Head of the Department.

A random sample of Punjabis, both male and female, belonging to different age groups, is being studied. Readings are taken with the help of EEL spectrophotometer at proximo medial forearm, middle of the medial upper arm and glabella—forehead—to study the age and sex differences in skin colour and sun tanning. The direct effect of calculated amount of ultraviolet rays on skin pigmentation is also under study.

573.677

23.10 Kaul, Samvit Swarupa. Physical growth and development. Panjab, Anthropology, 1966-68. Sharma, Jagdish Chandra, Lecturer.

A growth study among the Kashmiri Pandits is being conducted with special reference to anthropometry, some physiological traits and nutritional status. It has been undertaken to assess the growth and development of these people and the possible effects of 'inbreeding' on their physical growth and development.

573.6

24.11 Khajuria, Shashi. Sex differences as seen in the physical growth of Punjabis. Panjab, Anthropology, 1964-67. Chopra, Shiv Raj Kumar, Reader and Head of the Department.

The study, based on selected somatometric observations on a cross sectional sample of Punjabis, is an attempt to understand sex differences which result in bodily size and proportions with each successive year. The data thus collected will be subjected to statistical treatment and interpretation.

573.6

25.12 Parmar, Pritam Kumar. Anthropometric survey of the Gaddis of Dhauladhar. Panjab, Anthropology, 1963-67. Chopra, Shiv Raj Kumar, Reader and Head of the Department.

This survey is an attempt to study qualitatively and quantitatively the morphological features of Gaddis, their physical development and ethnic relationship vis-a-vis other populations.

573.6

26.13 Sen, Tulika. Growth and development of Bengalee school going girls from the age of 5 to 18 years. Calcutta, Anthropology, 1965-67. Basu, M. N., Professor and Head of the Department.

573.6

BIOLOGY

27.1 Chakrabarti, Sajulkumar. Studies on some aspects of the biology. Calcutta, Botany, 1964-67. Banerjee, S. N., Reader.
574

28.2 Gupta, P. C. Biomathematics. Delhi, Mathematics, 1965-68. Varma, R. S., Dean, Faculty of Mathematics and Majumdar, S. K.
574

Physiology

Nutrition & Metabolism

29.3 Basumallik, Asiskumar. Studies on servin lipoprotein metabolism. Calcutta, Applied Chemistry, 1965-68. Mukherjee, S.
574.13

30.4 Chattopadhyay, Ajaykumar. Effects of riboflavin deficiency on protein metabolism and their possible mechanisms. Calcutta, Physiology, 1964-67. Ghosh, B. B., Lecturer.
574.13

31.5 Chattopadhyay, Manju. Studies on certain aspects of lipoprotein metabolism. Calcutta, Applied Chemistry, 1963-67. Mukherjee, S.
574.13

32.6 Nistandra, S. C. Studies on fluoride metabolism. Panjab, Biochemistry, 1966-69. Sareen, K. N., Professor and Head of the Department.

Fluoride metabolism is being studied with particular reference to detection and characterization in ultra-micro-concentrations and their biological effects.
574.13

33.7 Satapathi, Rajkisor. Manybody problem. Calcutta, Applied Chemistry, 1964-68. Mukherjee, S.
574.13

Reproduction

34.8 Basu, Satyendranath. Chemical method for detection of ovulation time. Calcutta, Biochemistry, 1962-67. n.g.
574.166

Biophysics

35.9 Swaminathan, S. Physical studies on protein and related compounds. Madras, Physics, 1962-67. Ramachandran, G. N., Professor and Head of the Department.

Elastoidin has been selected for a detailed study. Since the elastoidin contains two components, they have been separated for individual studies. The physical characteristics of these two components are being studied by physical methods, like viscosity, light scattering, small angle X-ray scattering etc.

574.191

36.10 Tarakanath, Madaksir Seshagirirao. The effects of ionising radiations on molecules of biological interest. Bombay, Indian Cancer Research Centre, Bombay, 1965-69. Korgaonkar, K. S., Head, Biophysics Group, Indian Cancer Research Centre, Bombay.

Ionising radiations are known to be carcinogenic. Screening of different molecular constituents of the body is, therefore, being carried out to see whether these molecules on their irradiation turn out as carcinogens.

574.1915

Biochemistry

37.11 Ajaya Kumar, Purimetla. Biosynthesis of riboflavin glycosides. I.I.S., Bangalore, Biochemistry, 1964-68. Cama, Homi, R., Professor and Appaji Rao, N., Lecturer.

The biosynthesis of riboflavin glycosides has been observed on incubating riboflavin and sugar with plant seed extracts. The sugars were not specific. The characteristics of this reaction have been studied. An enzyme catalyzing this reaction has been isolated in a highly purified form from fresh water fish livers. This enzyme required specifically maltose. The elucidation of the structure of the new compounds is in progress.

574.19254

38.12 Akbar Badshah. Synthesis of amino acids and peptides. Aligarh, Chemistry, 1966-69. Kidwai, A. R., Professor and Head of the Department.

574.19296

39.13 Basu, Kasturi. Biochemical studies on tyrosine toxiosis. Calcutta, Biochemistry, 1964-68. Ghosh, J. J., Professor.

574.1925

40.14 Basu, Satya Ranjan. Autoradiographic studies of molecular events in cells 'in vitro'. Bombay, Indian Cancer Research Centre, Bombay, 1963-66. Ranadive, K.J., Chief, Biology Division, Indian Cancer Research Centre, Bombay.

The effects of various chemicals on the synthesis of macromolecules—DNA, RNA and protein—have been studied in different cell lines 'in vitro', using labelled precursors with autoradiographic technique. The various chemicals used in these investigations are hydroxylamine, hydroxyurea, acriflavine, acridine orange and actinomycin D. These investigations explore the degree of interdependence of biosynthetic processes both in quantitative and qualitative manner with respect to the cells having their origin in different tissues and species.

574.192

41.15 Battula Narayana. Metabolism studies on tissue cells in suspension. Aligarh, Chemistry, 1966-69. Kidwai, A.R., Professor and Head of the Department and Bhargava, P.M., Regional Research Centre, Hyderabad.

574.192

42.16 Bhattacharyya, Sasankasekhar. Metabolic interrelationship of thyroid and sex hormones. Calcutta, Biochemistry, 1963-68. Mukherjee, A. K., Professor of Physiology, Presidency College, Calcutta.

574.1927

43.17 Burman, Sujata. Studies on the metabolism of l-ascorbic acid. Calcutta, Biochemistry, 1964-68. Ghosh, J.J., Professor.

574.1926

44.18 Dasgupta, Pratima. Some aspects of induced enzyme synthesis. Calcutta, Biochemistry, 1963-67 Ray, S.C., Professor and Head of the Department.

574.1925

45.19 Manjula, Belur Narayana. Structural aspects of protein catalysis. I.I.S., Bangalore, Biochemistry, 1965-69. Vithayathil, P.J., Asstt. Professor.

It is proposed to investigate the structural changes that enzyme ribonuclease undergoes, when maintained in aqueous solution at high acidic pH values. Enzyme ribonuclease is known to undergo irreversible structural changes at high acidic and alkaline pH regions. These changes are usually accompanied by loss in enzymic functions. The present investigation deals mainly with the isolation and characterisation of stable forms of the protein that are formed during the reactions at high acid pH regions.

574.19256

46.20 Papiha, S.S. Investigations on proteolipids and phosphatidopeptides. Panjab, Biochemistry, 1966-69. Narinder Nath, Reader.

It is proposed to study distribution, metabolism and functions of protein-lipids complexes. The nature of these complexes will also be studied.

574.192

47.21 Perumal, Authoor *Srinivasachary*. Studies on mucopolysaccharides in relation to vitamins. I.I.S., Bangalore, Biochemistry, 1963-67. Cama, Homi R., Professor.

Biosynthesis of sulfated mucopolysaccharides (MPS) in relation to fat soluble vitamins A and K has been studied. The percentage of sulfated MPS increases abnormally in hypervitaminosis A and this can be brought back to normalcy with vitamin K dosage. The mode of action is shown to be partly due to the action of vitamins on lysosomes.

Biochim. Biophys. Acta. 124 ; 1966 : p. 95-100.

574.1926

48.22 Prema Kumar, R. Intermediary metabolism of aromatic compounds. I.I.S., Bangalore, Biochemistry, 1966-69. Vaidyanathan, C.S., Asstt. Professor.

A. tumefaciens has been adapted to a variety of aromatic compounds, such as, anthranilate, salicylate and benzoate, to study their metabolic fate with special reference to the inducible enzymes. Some of these enzymes have been isolated and are being purified by the standard enzymological methods.

574.1921

49.23 Ray, Ranjitkumar. Biochemistry study on host virus asyterus. Calcutta, Biochemistry, 1965-67. Burma, D.P., Professor of Biochemistry, Banaras Hindu University, Varanasi.

574.192

50.24 Reddy, Nagendra Nath K. Studies on structural aspects of proteins. I.I.S., Bangalore, Biochemistry, 1960-67. Sarma, P.S., Professor.

A new coloured isothiocyanate, 2, 4-dinitrophenylamino-p-phenyl isothiocyanate, has been synthesised for the first time and its reactions with amino acids, peptides and proteins have been studied. It is found to be applicable in the sequential degradation of peptides as also possess an advantage over the existing reagents.

574.19296

51.25 Saini, A. S. Improved chromatographic techniques for studies on certain constituents of biological fluids. Panjab, Biochemistry, 1965-68. Sareen, K.N., Professor and Head of the Department.

574.19212

52.26 Sarkar, Phalguni. Studies on some biochemical aspects of different organs. Calcutta, Biochemistry, 1965-67.

Chakravarti, B., Professor of Physiology, Medical College, Calcutta.

574.192

53.27 Satyanarayana Murthy, Gundlupet. Chemical modification of enzymes. I.I.S., Bangalore, Biochemistry, 1965-69, Vithayathil, P.J., Asstt. Professor.

It is known that orthoquinones are intermediates in biological systems. It is proposed to study the nature of the products that are formed during the reaction of orthoquinones with amino acids, peptides and proteins. Some of these reactions may reasonably be involved in the changes in activity of enzymes in biological systems.

574.1925

54.28 Sharma, Bhrugubanda Venkata Subrahmanya. Biosynthesis of quinones in microorganisms and plants. I. I. S., Bangalore, Biochemistry, 1963-67. Ramasarma, T., Lecturer.

The biosynthesis of the isoprenoid side chain of ubiquinone in molds and yeast follows the conventional acetate-mevalanate pathway, whereas bacteria seem to have a different mechanism. The polyisoprenoid side chains of ubiquinone, plastoquinone and vitamin K_1 in plants are synthesised from mevalonic acid.

Arch. Biochem. Biophys. 110 (1) ; 1965.

574.1929

55.29 Sreeleela, Nonavinakere Srinivasa Iyengar. Intermediary metabolism in Agrobacterium tumefaciens. I. I. S., Bangalore, Biochemistry, 1965-69. Vaidyanathan, C. S., Asstt. Professor.

A. tumefaciens has been adapted to a variety of aromatic compounds in order to get an insight into the patterns of elaboration of inducible enzymes and dissimilation of various aromatic compounds. Some of these inducible enzymes have been isolated and their purification by standard enzymological methods is in progress.

574.1921

56.30 Subrahmanya Sastry, Lanka Venkata. Structural aspects of proteins. I.I.S., Bangalore, Biochemistry, 1961-67. Sharma, P. S., Professor.

Besides studies on shark protein elastoidin, proteins of sorghum grains have been extracted and characterised electrophoretically. These have also been studied by electrophoresis after disulphide bond cleavage. Varietal differences in protein composition have been observed and attempts are being made to fractionate the proteins.

Amino acid composition of sorghum varieties and protein fractions will also be studied.

Biochim. Biophys. Acta. 97 ; p.281-287.

574.19296

57.31 Varughese, Kavanakuzhiyil John. Studies on vitamin A_1 and A_2. I. I. S., Bangalore, Biochemistry, 1963-67. Cama, Homi R., Professor.

The chemical synthesis of 5,6-epoxy retinoic acid has been achieved and is found to possess a biological activity of 150% of that of vitamin A. The metabolism of 3-hydro vitamin A has also been investigated in detail. The chemically synthesised retroretinyl acetate has been isomerised to vitamin A in the intestine of the rat. The isomerisation can also be demonstrated using everted intestinal sacs.

(1) Jour. Chrom. 18 ; 1965: p.53 ; and (2) Biochem. Jour. 99 ; 1966 : p.312.

574.1926

Cytology

58.32 Natarajan, R. Cytological studies. Annamalai, Zoology, 1957-66. n.g.

574.87

Microbiology

Physiology

59.33 Anantbhat, M. L Biology and nutritional requirements of T. rubrum. Bombay, Seth G. S. Medical College, Bombay, 1962-68. Purandare, N. M., Pathologist, Haffkine Institute, Bombay.

Various strains of T. rubrum are being studied for their nutritional requirements and their effect on pathogenicity.

576.113

60.34 Basu, Sandip. Studies in some metabolic aspects of microgenesape. Calcutta, Biochemistry, 1964-67. Ray, S. C., Professor and Head of the Department.

576.113

61.35 Chandrakantha, A. A. Microbial metabolism. Madras, Biochemistry, 1965-68. Shanmugasundaram, E. R. B., Professor.

Hydrolytric enzymes are found to be necessary for the growth of the microorganism. The nature of the proteolytric enzymes from wild green Aspergillus nidulans has been investigated and a study of the adaptive increase in the production of proteolytric enzymes in the presence of different substrates, like cascin, haemoglobin and egg albumin, has been undertaken.

576.113

62.36 Chopra, Charanjit Lal. Studies on induced mutations in Rhizobium. I. A. R. I., Delhi, Microbiology, 1966-69. Subba Rao, N. S., Microbiologist.

576.11592

63.37 Dey, Bimal Krishna. The influence of root exudates on the rhizosphere microflora. I. A. R. I., Delhi, Microbiology, 1964-67. Sundara Rao, W. V. B., Head of the Division.

576.114

64.38 Haveliwala, M. Y. Studies in phospholipase C of Clostridium perfringens type A. Bombay, Haffkine Institute, Bombay, 1962-65. Rao, S. S., Asstt. Director, Haffkine Institute, Bombay.

Phospholipase C has been purified from the culture filtrate of Clostridium perfringens and is found to be the principal toxic secreted by the organism. The properties of the purified enzyme have been studied and its estimation has been tried by different methods. The kinetics of the reaction of phospholipase C with its substrate in presence of antibody are being studied.

576.11925

65.39 Jothianandan, D. Studies on microbial metabolism. Madras, Biochemistry, 1965-68. Shanmugasundaram, E. R. B., Professor.

Biochemical studies on the host-parasite relationship are being carried out. The fungus, Piricularia oryzae, causes blast disease in paddy plants. The changes in nitrogen and phosphorus in normal and infected conditions of the host are being investigated.

576.113

66.40 Magu, Sat Pal. Biochemical characteristics and enzymic contribution of Rhizobium. I. A. R. I., Delhi, Microbiology, 1965-68. Sen, A. N., Microbiologist.

576.11925

67.41 Meenakshisundaram, S. Microbial metabolism. Madras, Biochemistry, 1963-67. Shanmugasundaram, E. R. B., Professor.

The biochemical genetical variation in the pathogenicity of two mutants of Fusarium Vasinfectum is being worked out.

567.113

68.42 Narasimha Pillai, Ramalingam. Studies on the growth of Rhizobium under cultural conditions. I.A. R. I., Delhi, Microbiology, 1965-68. Sen, A., Professor.

576.1134

69.43 Potty, V. Hariharan. Microbial folates and their metabolic significance. Bombay, Chemical Technology, 1963-66. Tamhane, D. V., Reader.

The mechanism of biosynthesis of folic acid in the celiated protozoan Ochromonas malbamensis, the nature of folate coenzymes in this organism and their role in metabolic transformation, such as, biosynthesis of methionine and glutamic acid have been studied. The mode of action of folate antagonists, like amethopterin, 2-chloro pABA and sulphanilamide and the mechanism of pABA toxicity are under investigation.

576.11334

70.44 Sadasivam, S. Studies on microbial metabolism. Madras, Biochemistry, 1964-68. Shanmugasundaram, E. R. B., Professor.

Flavokinase enzyme activity has been studied in Solanum nigrum L. Some flavin compounds have been identified and genetical studies on A. nidulans are being carried out by rising mutation techniques.

576.113

71.45 Sadique, J. Microbial metabolism. Madras, Biochemistry, 1963-66. Shanmugasundaram, E. R. B., Professor.

Riboflavine biosynthesis has been carried out with the help of mutants of A. nidulans. This will help elucidate the biogenesis of riboflavine.

576.113

Ecology

72.46 Neelakantan, Subramanian. Studies on some aspects of microbiocoenotic associations. I. A. R. I., Delhi, Microbiology, 1964-67. Venkataraman, G. S., Microbiologist.

576.15

Economic Microbiology

73.47 Damodaran, Nambudiri. Microbiology of coir retting. I.I.S., Bangalore, Fermentation Technology Laboratory, 1966-69. Bhat, J. V., Professor.

The degradation of lignin, cellulose, pectin and lipids and the organisms associated with it in the process of coir retting is under investigation. Using chemically defined lignin isolated from coconut husk as sole carbon source, a few organisms have been isolated. Methods are being standardized to follow their lignolytic ability.

576.16

74.48 Goswami, Satindra Kishore. Microbial production of glutamic acid. Jadavpur, Food Technology & Biochemical Engineering. 1965-67. Mazumdar, Saroj Kanti, Reader.

Glutamic acid, though not an essential amino acid, has a large demand in the food industry as a flavor enriching chemical agent and its microbial production has got a definite advantage over chemical process. Considering the importance of studying the fermentative production of glutamic acid, the work has been undertaken using a high glutamic acid producing bacterial species.

576.16

75.49 Tha, Maung Kyaw. Studies on biological production of elementary sulphur from gypsum. I. A. R. I., Delhi, Microbiology, 1964-68. Sen, A., Professor.

576.16

Beneficial Microorganisms

76.50 Goyal, Santosh Kumar. Studies on the effect of nitrogen fixing blue-green algae on the yield of paddy crop. I.A.R.I., Delhi, Microbiology, 1965-69. Venkataraman, G. S., Microbiologist.

576.162

77.51 Laxminarayan, K. Studies on the enzyme induction and reversible mutation in molds. Baroda, Microbiology, 1964-66. Modi, V.V., Head of the Department and Shah, V. K., Lecturer.

A strain of Aspergillus niger capable of growing in gluconic acid as the sole carbon source, has been developed by serial subculturing on gluconic acid. The optimum conditions of growth have also been determined. Comparative studies between the new strain and the original parent regarding the nature of growth, composition of the mat, enzymes of pentose phosphate pathway and glycolytic pathway are in progress.

576.162

78.52 Reddy, V. V. R. The mechanism of carotene biosynthesis in carrots and mangoes. Baroda, Microbiology, 1964-66. Modi, V. V., Head of the Department.

Attempts have been made to isolate and identify the intermediates of carotene biogenesis from carrots and mangoes. It is found that lycopersene (C_{40}) is absent in mangoes, while geraniol is present in both mangoes and carrots. The decrease and increase in acid and sugar content has been observed in ripening mangoes. The hexose monophosphate shunt is found to be operating during ripening of mangoes and its importance with reference to carotene formation is being studied.

Ind. Jour. Exp. Biol. 3 ; 1965 : p. 145.

576.162

Food Microbiology

79.53 Hegde, Umashashi C. Microbial synthesis of toxins and their biochemical effects. Madras, Biochemistry, 1963-67. Shanmugasundaram, E. R. B., Professor.

Diets, like wheat bran and groundnut meal, contaminated with common food contaminants, like Pencillium rubrum, Pencillium purpurogum, Aspergillus oryzae and Aspergillus flavus have been tested for the toxicity with rice moth larvae. It is found that only diets contaminated with A. flavus are toxic to rice moth larvae. Biochemical studies have been carried out with the larvae grown on diets contaminated with A. flavus. Citric acid cycle enzymes have also been studied in both the normal larvae and the larvae grown on contaminated meal. It has been observed that to a great extent the dehydrogenases are inhibited in larvae grown on contaminated meals. The effect becomes more marked, when the toxin is incorporated. Free amino acid pattern has also been studied in both the normal larvae and the larvae grown on contaminated meal. Polyphenol oxidases are being studied in both the normal larvae and the larvae grown on contaminated meal.

576.163

Deleterious Microorganisms

80.54 Godbole, Shridhar Hari. Incidence of pathogens in drinking waters in Poona and its epidemiological significance. Poona, Microbiology, 1966-68. Wagle, P. M., Head of the Department.

The investigation is aimed at detecting pathogens, including viruses, in drinking waters in Poona region so as to get the idea of the sanitary condition of these waters in different seasons of the year and to study its effect on the health of the population of this region.

576.165

81.55 Khan, Mohd. Wajid. Microorganism and nematode relationship. Aligarh, Botany, 1965-68. Khan, Abrar M., Reader.

576.165

82.56 Limaye, Kunda Shridhar. Microflora in the rhizosphere of Santalum album. I. I. S., Bangalore, Fermentation Technology Laboratory, 1966-70. Bhat, J. V., Professor.

Natural microflora in the rhizosphere of Santalum album L. and one of its host plants, Acacia farnasiana is being investigated in both the free and parasitized conditions.

576.165

83.57 Madhavikutty, K. Mycotoxicosis. Madras, Biochemistry, 1964-67. Shanmugasundaram, E. R. B., Professor.

Strains of Aspergillus flavus oryzae, Pencillium rubrum, and Penicillium purpurogenum have been tested for their capacity for toxin production in white mice. Only A. flavus and P. rubrum are found to have toxic effect. The activities of the Kreb's tricarboxylic acid cycle enzymes have also been studied in mice, in both the normal and diseased conditions. The toxin has been isolated from A. flavus cultures on different media and its effect on the growth of rice moth larvae is being studied.

576.165

84.58 Sampath Narayanan, A. Biochemical, genetical and metabolic studies in microorganisms. Madras, Biochemistry, 1963-66. Shanmugasundaram, E. R. B., Professor.

The studies undertaken on Fusarium vasinfectum have revealed that the cotton wilt pathogen utilises different macromolecules with the help of inducible, adaptive enzymes and with altered metabolic patterns and biochemical constitution. The pathogenicity of this pathogen and toxin i.e. furaric acid production are influenced by the carbon source. The hydrolytic enzymes of this pathogen have a wide pH range of action, heat stability and high optimum temperature and their susceptibility to different inhibitors vary.

576.165

85.59 Shyamala Devi, C. S. Biochemical and genetical studies in microorganisms. Madras, Biochemistry, 1964-67. Shanmugasundaram, E. R. B., Professor.

Attempts have been made to produce nutritional mutants of Aspergillus nidulans by nitrous acid method and ultraviolet irradiation method and in the process a riboflavine requiring mutant has been isolated by subjecting the spores of Ybi_1 to ultraviolet light. Biochemical and genetical studies on the mutant are being carried out. The biosynthetic pathway of riboflavine is also being traced.

576.165

86.60 Uma Bai, R. Biochemical, genetical and metabolic studies in microorganisms. Madras, Biochemistry, 1965-68. Shanmugasundaram, E. R. B., Professor.

A study of the activities of different enzymes involved in the citric acid cycle has been undertaken in both the varieties of cotton, susceptible and resistant to pathogen, Fusarium vasinfectum—causing vascular wilt of cotton—in the healthy and infected stage at different age levels. The activities of fumarase, malic dehydrogenase, α-keto-glutaric decarboxylase and succinic oxidase are found to be more in the infected susceptible cotton than in the healthy susceptible variety.

576.165

Regional Microbiology

87.61 Shah, Ramesh Gamanlal. Some aspects of water microbiology. I. I. S., Bangalore, Fermentation Technology Laboratory, 1965-69. Bhat, J. V., Professor.

The object of this investigation is to find out whether hard and soft waters have any difference in so far as their flora is concerned. Water samples have been analysed bacteriologically from their physicochemical and mircrobiological points of view as well as from the sanitary point of view. A few bacteria which have displayed unusual morphology and could not be recognized are being subjected to further investigation.

576.192

Microorganism & Immunity

88.62 Bundealli, Amina Esmail. Studies on the antigens of Bordetella pertussis. Bombay, Haffkine Institute. Bombay, 1964-67. Rao, S. S., Asstt. Director, Haffkine Institute, Bombay.

The amino acid and vitamin requirements of some strains of Bordetella pertussis have been studied and a synthetic medium has been worked out. The antigenic structure of B. pertussis has been analysed and attempts are being made to separate the protective antigen and the histamine sensitizing factor.

576.22

89.63 Chattopadhyay, Reba. Morphological culture and biochemical studies on streptomycin resistance in Bacillus subtilies. Calcutta, Biochemistry, 1962-67. Majumdar, S. K.

576.2

90.64 Mandal, Aamlendu. Studies on the effect of streptomycin on Bacillus subtilies. Calcutta, Biochemistry, 1963-67. Majumdar, S. K.

576.2

91.65 Mridha, Kusum Kumari. Studies on antibiotic resistance of microorganisms. Calcutta, Microbiology, 1964-68. Mukherjee, S. N.

576.2

92.66 Samanta, Bhakti. Studies on streptomycin sensitive and resistant strains of Bacillus subtilies. Calcutta, Biochemistry, 1964-67. Majumdar, S. K.

576.2

Ultramicrobes

Viruses

93.67 Banerjee, Kalyan. Studies on dengue viruses with reference to certain biological and immunological characteristics. Calcutta, Virus Research Centre, Poona, 1963-66. Anderson, Charles R., Director, Virus Research Centre, Poona.

The research comprises standardization of the methodology for culturing dengue viruses in vitro, and differentiation of dengue viruses with the help of biological markers, neutralization and agar gel diffusion tests.

576.6484

94.68 Bhurat, Milap Chand. Studies on the phyllosphere bacteria of some agricultural crops. I.A.R.I., Delhi, Microbiology, 1966-68. Sen, A., Professor.

576.6482

95.69 Chhonkar, Pramod Kumar. Studies on root hair infection by rhizobia. I.A.R.I., Delhi, Microbiology, 1965-68. Subbarao, N. S., Microbiologist.

576.6482

96.70 Das, Jyotirmay. Ultra structural and related biophysical studies on vibric choleral and their bacteriophage. Calcutta, Biophysics, 1964-68. Chatterjee, S. N., Professor of Biophysics, School of Tropical Medicine, Calcutta.

576.6482

97.71 Datta, Bani. Biophysical studies on the intracellular application of bacterial viruses. Calcutta, Biophysics, 1963-67. Poddar, R. K., Lecturer in Physics.

576.6482

98.72 Gadgil, Sindhu Mukund. Studies on P. pestis in relation to virulence and immunogenicity. Bombay, Haffkine Institute, Bombay, 1964-67. Jhala, H. I., Director, Haffkine Institute, Bombay.

A typical virulent and an avirulent strain of P. pestis have been grown at 27°C and 37°C to study the amino acid composition and sugars of the whole cells and the cell walls. The growth rates and morphology of five strains of P. pestis have been studied at 37°C in shaken cultures. The immunogenic properties of different strains are being studied and the effect of EDTA on the cells is being observed to define the role of Ca^{++} in the growth of organism at 37°C.

576.64

99.73 Gauri Shankar. Studies on cucurbit viruses. I. A. R. I., Delhi, Mycology & Plant Pathology, 1966-69.

Nariani, T. K., Virus Pathologist.

Cucurbits in India are affected by several viruses some of which have not been studied thoroughly. It is proposed to study this group of viruses and classify them using serology as the criterion. The viruses will be purified using the latest techniques and antisera prepared against them. The serological relationships between the viruses will be studied and the viruses classified into groups based on their physical and chemical properties and serological relationships.

576.6483

100.74 Joshi, L. M. Bacteriophage typing and its genetical applications. Bombay, Seth G. S. Medical College, Bombay, 1962-68. Purandare, N. M., Pathologist, Haffkine Institute, Bombay.

Mutants of phages produced by different methods have been studied with particular reference to sal typhi and para A. The genetics of the mutants are under study.

576.6482

101.75 Kalra, Iqbal Singh. Metabolic studies on amoebae with reference to Entamoeba histolytica Madras, Central Drug Research Institute, Lucknow, 1964-67. B. N. Singh, Director, Central Drug Research Institute, Lucknow.

Enzyme studies in parasitic and free living amoebae are being carried out. It has been found that in a virulent strain of Entamoeba histolytica both the proteolytic and succinic dehydrogenase enzymes are present. The mode of action of amoebicidal drugs is also being investigated.

576.6484

102.76 Palchaudhuri, Sunilranjan. Study on altered metabolism of the viruses infected bacteria by biophysical techniques. Calcutta, Biophysics, 1963-67. Poddar, R. K., Lecturer in Physics.

576.6482

103.77 Shah, Jessie A. Studies on aetiology of tropical eosinophilia. Delhi, Microbiology, 1963-67. Gupta, N. P., Asstt. Director.

The work consists of field and laboratory studies in human beings and animals. Work in the field including serum studies of patients with filariasis, ellephantiasis and tropical eosinophilia has been done in Delhi and Calicut. The life cycle of the rat filaria H. casinii, as maintained in the laboratory, and studies of the inflammatory processes in three animals are being pursued.

576.6484

BOTANY

Physiology

104.1 Acharya, Usha Harinarayan. Resistance physiology of some plants of Gujarat. Gujarat, Botany, 1960-67. Chinoy, J. J., Professor and Head of the Department.

Wheat, ragi and seasamum have been selected for study. The effect of pre-sowing hardening treatment on seedling germination, effect of wilting at different growth stages of the adult plant raised from pretreated seeds as also the effect of pretreatment, dessication and wilting on the metabolic activities of both the germinating seedlings and adult plants are being studied.

581.1

Nutrition & Metabolism

105.2 Banerji, Debashis. Studies in protein metabolism with particular reference to kinetin effects. Allahabad, Botany, 1961-66. Laloraya, Manmohan Manohar, Lecturer.

Biochemical changes accompanying kinetin induced growth effects in plants have been studied in lettuce seedlings, etiolated pea epicotyl sections, pumpkin cotyledons and tobacco leaf discs. Kinetin causes high protein/soluble N ratio in lettuce indicating growth in light to be under the control of kinins. In pumpkin cotyledons, age factor is important and the sites of action of light and kinetin appear to be different. In tobacco leaf discs, kinetin seems to retain protein level interfering with the hydrolytic process.

(1) Leaf age—a factor in the control of kinetin regulated protein level in isolated tobacco leaf discs. Curr. Sci. 32 ; 1963 : p. 470 ; (2) Comparative effects of indole 3-acetic acid, kinetin and gibberellic acid on the growth of isolated cucurbita pepo cotyledons. ibid. 35 ; 1966 : p. 601-602; (3) Expansion of isolated pumpkin cotyledons with kinetin : Effect of seedling age. Naturwises. 12 ; 1965: p. 349; (4) Effect of chloromphenicol on the expansion of isolated cotyledons of Cucurbita pepo in light and in presence of kinetin Experientia. 21 ; 1965 : p.516 ; and (5) Uncoupling of auxin induced protein synthesis and water uptake by kinetin. Nature. 211 ; 1966 : p. 758.

581.13345

106.3 **Bhattacharya, Mihir Kumar.** Host-parasite relations. Banaras, Botany, 1965-66. Mukherjee, K. L., Reader.

Adjustment of the abnormal metabolism of the parasites, Cusenta reflexa, Roxb and Orobanche eagyptica, with the individual host's metabolism is under investigation. It is found that the chemical composition of the parasites varies with the hosts on which they thrive. Pharmaceutically, the parasites are found to be potent. Control measure has been tried and the rate of various enzyme activities present in parasites determined.

581.13

107.4 Chaturvedi, Ghan Shyam. Role of micro elements on plant metabolism. Allahabad, Botany, 1966-69. Amar Singh, Reader.

581.13356

108.5 Chaudhuri, Jatindramohan. Physiological studies on growth of plant organs. Calcutta, Agriculture, 1962-67. Sen, P. K., G. P. Singh Professor and Head of the Department.

581.134

109.6 Cheriyan, Ammini. Studies on the biological effects of plant growth substances. Kerala, Botany, 1964-68. George, K., Reader and Head of the Department.

The research deals with the various responses of plants to different kinds of plant growth regulating substances. The effect of various substances on a cellular level as well as the morphological, anatomical and physiological responses of plants to these substances are being studied in detail.

581.134

110.7 Dani, H. M. Boron metabolism. Panjab, Biochemistry, 1966-69. Sareen, K. N., Professor and Head of the Department.

It is proposed to study the boron metabolism in cereal crops so as to find the mechanism of action of boron with respect to its effect on an increase in yield and the biochemical role of boron, in general, in higher plants.

581.13356

111.8 Ganga Sahai. Studies on metabolism of plants. Allahabad, Botany, 1966-69. Niranjan Das, Lecturer.

It is proposed to study the effect of molybdenum on growth and metabolism of wheat.

581.13

112.9 Gurumurti, K. Physiology of seed germination in relation to growth and development of plants. Gujarat, Botany, 1966-69. Chinoy, J. J., Professor and Head of the Department.

Pretreatment with ascorbic acid shows beneficial effects in growth and yield characters under field conditions. Increment ranges from 30-35% over controls. Maize, ragi and hybrid bajri have been chosen as the experimental materials.

581.135

113.10 Hadi, Sheikh Mumtaz. Nucleic acid metabolism in plants. Aligarh, Chemistry, 1965-68. Kidwai, A. R., Professor and Head of the Department and Murti. K.

581.13342

114.11 Kaushik, Dhirendra Dutt. Studies on certain aspects of plant metabolism. Allahabad, Botany, 1961-66. Laloraya, Manmohan Manohar, Lecturer.

The varieties of tobacco under study have shown varietal differences of metabolism during dark culture. Malic and citric acid change has been correlated with assaying of 'Malic' enzyme and the role of coenzymes put forward. The high accumulation of sugars in the corolla of Madhuca has also been studied with reference to the role of transport of metabolites of the denuded tree.

581.13

115.12 Krishnamurthy, Kaza Venkata. Metabolism in excised roots. Venkateswara, Botany, 1964-68. Das, Vallabhaneni Sita Rama, Reader.

The research deals with the culturing of excised root tips of cucumber and radish in liquid nutrient medium and the induction of lateral roots by application of growth regulators. Biochemical changes associated with the induction of lateral root primordia will also be investigated.

581.13

116.13 N. Prakash. Studies on growth and morphogenesis of higher plants. Delhi, Botany, 1963-67. Kapil, R. N., Reader.

581.135

117.14 Pal, Archana. Relationship between micronutrients and auxins. *D. Sc.* Allahabad, Botany, 1966-69. Amar Singh, Reader.

The relationship between some micronutrients, such as, manganese, copper, molybdenum, boron etc., and auxins, in plant metabolism, is being worked out.

581.13356

118.15 Pal, Ravindra Nath. Studies on effects of calcium in metabolic activities of certain crop plants. Allahabad. Botany, 1964-67. Laloraya, Manmohan Manohar, Lecturer.

Effects of different levels of calcium, toxic as well as deficient, on the metabolic activities, like nitrogen metabolism, respiration, organic acid metabolism, salt uptake etc., of peanuts and flax plants are under study. Interaction of calcium and sodium in pod formation of peanuts has also been studied.

581.13354

119.16 Pandey, Harendra Nath. Crop-weed competition for mineral nutrition. Banaras, Botany, 1966-68. Misra, K. C., Reader.

Inter and intraspecific competition for phosphate between four crops and seven weeds is being studied with the use of 32P. Phosphorus uptake by Pennisetum typhoideum Rich. and Cyperus rotunds Linn. has shown that age and density of the plants have profound influence on the relative uptake of phosphate from the soil. Rooting habits of crops and weeds are also being studied with the help of tracer technique.

581.13354

120.17 Patel, Hemalata D. Inductive effects of seed hormonization as well as of vernalization upon ascorbic acid metabolism, growth and development of some crop plants. Gujarat, Botany, 1961-67. Chinoy, J. J., Professor and Head of the Department.

Experiments on different aspects of metabolism and inductive and post-inductive periods of plant life cycle have been carried out. Inductive period includes seed germination while post-inductive period includes the later stages of plant life cycle upto maturity. The effect of seed hormonization and vernalization on growth and ascorbic acid metabolism during inductive period and the effect of vernalization and photoperiodism on growth and development during post-inductive period have also been studied.

581.135

121.18 Patil, Krishna Dadaji. Amino acid metabolism in relation to growth and development. I. A. R. I., Delhi, Botany, 1966-69. Sirohi, G. S., Plant Physiologist.

The interaction of growth regulating substances with developmental processes will be investigated.

581.13

122.19 Prem Narain Singh. Studies into the metabolism of crop plants. Allahabad, Botany, 1962-67. Amar Singh, Reader.

The effect of water stress on growth and metabolism of wheat and tomato has been studied. Photosynthesis, nitrogen uptake and protein metabolism are adversely affected by water stress.

581.13

123.20 Ram Harishwar Singh. Studies into the metabolism of crop plants. Allahabad, Botany, 1966-69. Amar Singh, Reader.

The effect of nutrients in relation to drought resistance of plants is being studied.

581.13

124.21 Rao, Narasinha. Certain aspects of protein and folate metabolism in relation to ascorbic acid nutrition. Calcutta, Biochemistry, 1966-68. Banerjee, Sachchidan anda, Director, Research Division, Dey's Medical Laboratories, Calcutta.

581.13345

125.22 Ravel, K. S. Prabha. Investigation on the effect of weedicides on plant metabolism. Jodhpur, Botany, 1965-67. Chatterji, Usha Nath, Professor and Head of the Department.

The research deals with the study of the effect of weedicides, like 2, 4, dichlorophenoxyaceticacid on the metabolic processes, carbohydrate and protein, of common weeds of Western Rajasthan desert, Jodhpur. The fall and rise in level of carbohydrate and proteins due to the effect of 2, 4-D and 2, 4, 5-T have been studied and compared with those of control seedlings.

581.1334

126.23 Ray, Dolly. Studies on the mechanism of the synthesis of fatty acids in ripening seeds and leaf chloroplasts of soyabean and sunflower plants. Calcutta, Biochemistry, 1964-67. Mukherjee, Suprabhat.

581.13346

127.24 Ritu Prakash. Studies on growth and morphogenesis of higher plants. Delhi, Botany, 1964-67. Maheshwari, S. C., Reader.

581.135

128.25 Sanjiva Reddy, Malikireddy. Metabolism of chloroplasts isolated from leaves of groundnut plants. Venkateswara, Botany, 1964-67. Das, Vallabhaneni Sita Rama, Reader.

The metabolism of chloroplasts in relation to soil salinity and alkalinity is being investigated on the Hill reaction activity and glycolic acid oxidase activity of chloroplasts, iron content and TPN reduction activity of ferredoxin isolated from leaves, and mineral analysis i.e. phosphorus, manganese, sodium, potassium and calcium content of chloroplasts.

581.13354

129.26 Sikka, Krishan Chander. Study of protein metabolism in developing seed of Bengal Gram, Cicer arietinum L. I. A. R. I., Delhi, Genetics, 1964-68. Lal, B. M., Biochemist.

581.13345

130.27 Srirama Rao, Kanakapally. Metabolic studies of mitochondria isolated from peanut seedlings. Venkateswara, Botany, 1964-67. Das, Vallabhaneni Sita Rama, Reader.

The salt induced increase in respiration by isolated mitochondria from the peanut (TMV$_2$) seedlings developed in artificial saline and alkaline conditions has been investigated. Succinate oxidation is the principal reaction being studied. ATPase activity and mitochondrial protein in the isolated mitochondria of seedlings in saline and alkaline conditions are also being studied.

581.13354

131.28 Srivastava, Rama Shankar Lal. Studies on mineral nutrition of plants. Allahabad, Botany, 1963 67. Niranjan Das, Lecturer.

The effect of pre-sowing treatment with micro elements, i. e. copper sulphate, manganese chloride, zinc sulphate, boric acid and molybdic acid to the seeds of barley (Hordeum vulgare L Vor. C 251) has been studied under both soil and sand cultures. Morphological characters have been recorded at 10,20 and 30 day stages and both the reducing and non-reducing sugars, total nitrogen and free amino acids and amides have been analysed at these stages. Ear characters have also been noted.

581.1335

132.29 Srivastava, Virendra Singh. Studies on nutritional requirements of some crop plants. Allahabad, Botany, 1965-68. Niranjan Das, Lecturer.

Pre-sowing treatment of boron and zinc has been given to the seeds of Triticum vulgare in the soil. After 30 days, foliar spray with gibberellic acid has also been done. Morphological characters have been recorded periodically and samples collected for biochemical analysis. Under morphological characters have been recorded the shoot length, number of leaves, leaf area, number of tillers and the final yield. Total nitrogen, amino acids and sugars have been estimated from the collected samples. The work now in progress is entirely based on sand culture which will throw some light on the interaction of gibberellic acid and indole 3-acetic acid with zinc and boron deficient plants of Triticum vulgare, L.

581.13

133.30 Sur, Rita. Nutritional studies on leaf protein. Calcutta, Biochemistry, 1964-67. Ghosh, J. J., Professor.

581.13345

134.31 Tandon, Rajinder. Studies on the physiology of rooting of cuttings of Bryophyllum, Populus and Eucalyptus. Panjab, Botany, 1965-68. Nanda, Krishan Kumar, Professor.

The investigations have been undertaken to study the effect of varying concentrations of IAA and IBA on rooting of stem cuttings of Populus, Bryophyllum and Eucalyptus. The changes in fresh and dry weight content as well as in the content of total nitrogen, protein and reducing sugars have also been studied. The results show that the content of total nitrogen and dry matter decreases gradually in cuttings when rooting takes place whereas the contents of reducing sugars and water do not change significantly during rooting.

581.134

135.32 Tyagi, Satendra Kumar. Studies on the metabolic relationship of plant growth. Allahabad, Botany, 1966-69. Laloraya, Manmohan Manohar, Lecturer.

Metabolic relationship of plant growth regulators, particularly gibberellins and kinins, will be studied in solo and interacting growth systems. For this hypocotyl growth promotion by gibberellins has been chosen as the bioassay material. Changes in nucleic acid and nitrogenous component during gibberellin induced growth are under study. These metabolic activities will also be studied in interacting growth systems.

581.134

Genetics

136.33 Chauhan, Krishan Pal Singh. Studies on crossing over and control of interchromosome chiasma distribution. I. A. R. I., Delhi, Botany, 1963-67. Jain, H. K., Head of the Division

The mechanism as well as the control of genetic recombination at the interchromosome level are being investigated in a number of species, such as, Delphinium and Chrysanthemum. There is evidence to suggest that the nature of interchromosome distribution of chiasmata is a function of the total number of chiasmata in a cell. Evidence has also been obtained which establishes that breakage and reunion of chromatids are involved in the process of genetic recombination.

581.151

137.34 Gollapudi, Harinarayana. Changes in components of fitness in relation to breeding system in some crops. I. A. R. I., Delhi, Botany, 1965-68. Murthy, B. R., Biometrical Geneticist.

The nature of gene action for component of fitness in a diallel set of Penisetum and Brassica has been attempted. The optimum fraction of a diallel for ordering the parents for combining ability of yield and grain quality has been programmed. The cytological basis of homeostasis under different degrees of inbreeding has also been studied in the two crops. The changes in genetic load under inbreeding will be related to the degree of cytological homeostasis.

581.151

138.35 Majid, Rehana. Mutations induced by physical and chemical mutagens in Tycooperation Spp. Aligarh, Botany, 1965-68. Reayat Khan, Reader and Swaminathan, M. S., Director, Indian Agricultural Research Institute, Delhi.

581.1592

139.36 Nerkar, Yogendra Shankar. Induction of mutations in Lathyrus sativus with special reference to the elimination of the neurotoxin causing Lathyrism. I. A. R. I., Delhi, Botany, 1966-69. Swaminathan, M. S., Director.

The varieties of Lathyrus sativus will be treated with a wide range of physical and chemical mutagens. The M$_2$ and subsequent generations will be screened particularly for the content of the neurotoxin causing the disease Lathyrism.

581.1592

140.37 Rustogi, Prem Narain. Effects of gametocidal compounds on crop plants with special reference to mechanism of induced male sterility. Delhi, Botany, 1963-67. Mohan Ram, H. Y., Reader.

581.151

141.38 Sarbhoy, Rakesh Kumar. Cytogenetical studies of crop plants, fruit trees and pulses and beans. Allahabad, Botany, 1966-69. Naithani, S. P., Scientist (Retd.).

Cytogenetical studies of the following plants have been undertaken with special reference to a study of their chromosome number, chromosome behaviour in both meiosis and mitosis, treatment with chemicals, and breeding : Sesbania sps., Lens esculenta, Cajanus sps., Cicer sps., Phaseolus aureus (Green Gram), P. mungo (Black Gram), P. aconitifolius (Moth), Pisum sps., Vigna sps., and Dolichos sps.

581.151

142.39 Sisodia, Krishna Pal Singh. Cytogenetical study of some fruit trees, crop plants and grasses. Allahabad, Botany 1963-67. Naithani, S. P., Scientist (Retd.).

The meiotic studies of the following grasses have been completed : Pennisetum sps., Sorghum sps., Paspalum sps., Thelepogon sps., Urochloa sps., Themeda sps., Iseilema sps., Euchalena sps., and Panicum sps. Mitotic studies of these grasses will also be pursued.

581.151

Propagation

143.40 Anand, Vinod Kumar. Impact of reproductive development and auxins of the rooting response of cutting in vitro. Panjab, Botany, 1965-68. Nanda, Krishan Kumar, Professor.

Experiments are being conducted to study the effects of size of the segment, the position of the buds on it, the photoperiod and concentrations of sucrose and auxins on the rooting of stem segments of Salix babylonica in vitro. The results obtained show that 3.5 cm. long segments with buds on their nodes root very well regardless of the photoperiod to which they are exposed. The initiation of roots on segments is stimulated by low concentrations of sucrose and auxins and also by the presence of buds on it. The elongation of roots is more in segments with sprouted buds.

581.165

144.41 Geeta, R. P. Physiology of reproduction and seed maturation in higher plants. Delhi, Botany, 1965-68. Maheshwari, S. C., Reader.

581.16

145.42 Jain, Adarsh Bala. Physiological studies on the rooting of cuttings of some forest tree seedlings. Panjab, Botany, 1966-69. Nanda, Krishan Kumar, Professor.

The studies on seasonal changes in stem cuttings of some tree species show that the rooting response decreases with age and the position the cutting on plant. Auxins stimulate rooting but their effect decreases with the age of the cutting. Cutting taken from plants raised under SD conditions root the maximum in all cases. Total nitrogen and dry matter decreases but amylase activity increases with rooting.

581.165

146.43 Kochhar, Tejinder Singh. A survey of the effect of auxins on rooting of forest tree cuttings. Panjab, Botany, 1965-68. Nanda, Krishan Kumar, Professor.

The work on the rooting trials of cuttings of a large number of forest tree species with varying concentrations of IAA, IBA, NAA and 2,4-D is being conducted both in Chandigarh and Manali. The results show that IAA and IBA help in the initiation of roots of a number of species while 2,4-D causes callus formation only. The results of seasonal rooting response of stem cutting show that in most of the cases cuttings root well during July-October, whereas in Salmalia malabarica cuttings root only when planted in May.

581.165

147.44 Vasudeva Rao, M. K. Ontogenetic studies in root-stem transition. Madras, Presidency College, Madras, 1965-69. Swamy, B. G. L., Professor of Botany, Presidency College, Madras.

As an outcome of recent studies on seedling structure, the validity of the conception to explain the continuity of differently organised vascular system in the main axis in terms of 'splitting, twisting and fusion' is doubted. An ontogenetic approach is being made to verify this.

581.165

Movements

148.45 Salanki, Adappa Sangappa. Study of entrainment of feedback oscillations in plants. Marathwada, Botany, 1965-68. Independently.

It is found that geotropically induced feedback oscillations in Carthamus tinctorius L. seedlings can be entrained to a required rhythm. It is intended to study the behaviour of the entrained feedback oscillations due to the effect of the various qualities of light and toxic substances. It is also proposed to study whether a plant recognises a particular pattern of stimulus.

(1) A note on pH sensitive pigments from some leguminous seeds. (with A. D. Karve). Marathwada Uni. Jour. 1 ; 1964 : p.94-102 ; (2) A feedback oscillation of a relatively high frequency in hypocotyle of Carthamus tinctorius L. (with A. D. Karve). Z. für Bot. 52 ; 1964 : p.98-102 ; (3) The phenomenon of phase shift in geotropically induced oscillations in Carthamus tinctorius L. seedlings. (with A. D. Karve). ibid. 52 ; 1964 : p.113-117 ; (4) Effect of alcohol and light upon the geotropically induced oscillations. (with A. D. Karve). ibid. 52 ; 1964 : p.186-192; (5) Dependence of the instant 'O' upon the direction of the disturbing stimulus in the phenomenon of phase shift. (with A. D. Karve). Naturwiss. 51 ; 1964 : p.367 ; (6) A new phase shift pattern and its use in interpreting some photoperiodic phenomenon. (with A.D. Karve). ibld. 52 ; 1965 ; P.215 ; and (7) Additional observations about phase shifts and entrainability in geotropically induced oscillations. (with A. D. Karve). ibid. 52 ; 1965 : p.480-481.

581.1832

Biophysics

149.46 Gupteshwar Lal. Photoperiodic studies in certain plants. Banaras, Agriculture, 1965-67. Garg, O. K., Reader.

An experiment has been designed to assess the effect of gamma radiation on the photoperiodic response of N. tabacum. The doses of gamma radiation are from 500 to 1500r. The photoperiodic treatments are short-day, long-day and continuous illumination. Growth and development have been found to be affected. Physiological determinations are in progress.

581.19156

150.47 Thombre, P. G. Cytotaxonomic studies in genus Cicer L and effects of irradiation on the varieties of Gram with 2N=14 and 16 chromosomes. Nagpur, Botany, 1965-69. Thombre, M. V., Lecturer.

Improved gram varieties have been irradiated with 15,000r, 30,000r, 45,000r doses. These are under study in R-2 generation for nutations. Cytotaxonomic study of gram species will be made. Chromosome number of gram collections will also be determined to isolate types having chromosome number 2n=14.

581.1915

Biochemistry

151.48 Airan, Meena Judson. Studies in the amino acid utilization in certain plants. Bombay, Wilson College, Bombay, 1965-67. Airan, J. W., Principal, Wilson College, Bombay.

Studies regarding the fate of certain amino acids, especially that of γ-aminobutyric acid in plants, are being carried out. For this purpose, transaminase reactions are being studied. Purification of enzyme is being attempted by fractional precipitation of proteins and by adsorption-elution technique. Chromatography and electrophoresis are some of the techniques used.

581.1921

152.49 Apte, Balkrishna Narayan. Genetic regulation of protein synthesis. Bombay, Atomic Energy Establishment, Trombay, 1964-67. Sahasrabudhe, M. B., Head of the Biochemistry & Food Technology Division, Atomic Energy Establishment, Trombay.

Investigations have been carried out on de-repression and purification of aryl sulphatases in Aspergillus nidulans. 200 to 250 fold purification of two fractions of sulphatases has been achieved. Twenty one sulphatase regulator mutants have been isolated using ultraviolet and nitrosoguanidine as mutagenic agents.

581.1929$_6$

153.50 **Asghar, Mohd. Shafi.** Amine oxidases and amino acid decarboxylases of opium plant. Aligarh. Chemistry, 1965-68. Siddiqi, A. M., Lecturer.

581.192

154.51 Bhaskar, Devdhar Prabhakar. Chemical investigation of plants : Study of certain seed oils in the Nagpur. region Nagpur, Laxminarayan Institute of Technology, 1965-67. Venkata Narayana Rao, Chalasani, Reader.

Many of the oil bearing seeds in Nagpur region have not been studied so far as regards their chemical composition and glyceride structure. It is intended to study these seeds by different techniques, such as, G. L. C. and T. L. C.

581.1921

155.52 Bose, Sambhu Nath. Biochemical aspects of flowering. Allahabad, Botany, 1963-67. Laloraya, Manmohan Manohar, Lecturer.

The biochemical changes undergone in the apex while it changes from the vegetative to flowering apex, chiefly concerning the nucleic acids and protein levels, have been studied. These have been correlated with the histochemical changes in the nucleic acids and basic protein, histone, associated with the nucleus during induction. Correlations have also been established by the use of various inhibitors of protein and nucleic acid metabolism in terms of their effect on the flowering response. Morphological changes in the apex as well as the role of various growth regulators during photoperiodic induction of flowering have also been studied.

581.192

156.53 Damodaran Nair, M. Cytological effects of chemicals, hormones and antibiotics on plants. Kerala, Botany, 1965-69. Abraham, A., Professor and Head of the Department.

The effect of some chemicals, hormones and antibiotics on mitosis and meiosis in plants is being investigated.

581.1927

157.54 Garg, Govinda Krishna. Isolation and characterization of a proteolytic enzyme from germinated sorghum seeds. I. I. S., Bangalore, Biochemistry, 1966-69. Virupaksha, T. K., Lecturer.

The presence of proteinase has been shown in the germinated sorghum seeds. Ammonium sulfate fractionation of the acetone powder extract gives two fractions which show a different pattern of adsorption and elution with calcium phosphate gel. Further experiments for purification and characterization of these enzymes are in progress.

581.19256

158.55 Harsaran Singh. Mechanism of enzyme action. Banaras, Chemistry, 1965-67. G. B. Singh, Professor and Head of the Department.

The enzyme α-Galactosidase from coffee beans has been purified to about 200 folds with an overall recovery of 12%. Its specificity has been studied in 14 synthetic substrates. V_{max} and K_m have been determined at various pHs using synthetic and natural substrates. Inhibition with sugars and amines has been studied. Its Galactosyl transfer action is being studied in detail.

581.1925

159.56 Kandaswami, Chithan. Metabolism of phenolic compounds. I. I. S., Bangalore, Biochemistry, 1965-68. Vaidyanathan, C. S., Asstt. Professor.

Investigation is being carried out on the metabolism of phenolic compounds in plant tissues. Enzymes metabolising catechol and some of the phenolic acids have been isolated. Purification of these enzymes, with a view to study the properties, is in progress.

581.1925

160.57 Kini, Chandrakant Vaman. Biochemistry of germinating seeds. Bombay, Chemical Technology, 1962-67. Rege, D. V., Professor.

The investigation relates to changes in enzymatic pattern of developing plant embryo, particularly, with regard to carbohydrate, protein and phosphorus metabolism and the influence of certain antimetabolites thereon.

581.1925

161.58 Malathi, Krishnamachari. Metabolism of naturally occurring amino acids. I. I. S., Bangalore, Biochemistry, 1966-70. Sarma, P. S., Professor.

The biosynthesis of the neurotoxic amino acid beta-N-oxalyl, alpha, beta, diaminopropionic acid in Lathyrus sativus seeds is being studied. The biosynthesis involves the activation of oxalyl moiety and condensation with diaminopropionic acid.

581.1929

162.59 Mehrotra, Brij Rani. Taxonomic and biochemical studies of soil fungi of India with special reference to Aspergilli, Penicillia and Mucorales. *D.Sc.* Allahabad, Botany, 1966-69. Mehrotra, B. S., Reader.

Several samples of soil from different parts of Uttar Pradesh and Madhya Pradesh have been collected and fungi belonging to the groups Aspergilli, Penicillia and Mucorales have been isolated.

581.192

163.60 Murthukrishnan, Subbaratnam. Biochemistry of trace elements. I. I. S., Bangalore, Biochemistry, 1965-69. Sarma, P. S., Professor.

Two siderochromes have been isolated from N. crassa under iron-deficient conditions. These have been shown to be the iron-donors for heme synthesis in N. crassa. Their biosynthesis is under investigation.

581.1921

164.61 Patil, M. D. Utilization of vegetable protein in different bacteriological media. Nagpur, Central Public Health Engineering Research Institute, Nagpur, 1964-68. Rao, N. U., Asstt. Director, Central Public Health Engineering Research Institute, Nagpur.

Bacteriological peptone is a very expensive product costing Rs. 50/- to 100/- per pound depending upon brand, since at present this is imported from other countries. If these imported peptones can be substituted by peptones prepared from indigenous material, a lot of foreign exchange can be saved. Pulses, like black gram, red gram, Bengal gram etc., are known for their high protein contents. Efforts are being made to utilise this source for peptones

581.19296

165.62 Rai, Jagmohan Sampatrai. Chemical investigation of some locally available plants of Marathwada. Marathwada, Chemistry, 1963-67. Thaker, Kamalakar Anant, Reader.

The work is confined to the chemical investigation of locally available plants of the Gentianaceae and Polygonaceae families only, with special reference to their physiologically active constituents.

Curr. Sci. 35 (6) ; 1966 : p.148-149.

581.1921

166.63 Rai, Vinay Kumar. Studies on the mode of action of gibberellins. *D.Sc.* Allahabad, Botany, 1966-69. Laloraya, Manmohan Manohar, Lecturer.

Interaction of light and gibberellins will be studied in an attempt to understand the nature of light inhibitor and the specificity of gibberellin action in plants.

581.1927

167.64 Rao, Balakrishna Kanhangad. Biochemical studies on the synthesis of sulphur-containing amino acids in leaf proteins. Agrl. Sciences, Hebbel, Chemistry & Soils, 1966-69. Perur, Narayana Gunderao, Professor.

Sulphur will be applied to leguminous plants in the form of different sulphur-containing compounds. Its effect on the synthesis of sulphur-containing amino acids in the leaf proteins will be studied.

581.19296

168.65 Ravindranath, Sreegiripuram Desikachar. Metabolism of water soluble vitamins. I. I. S., Bangalore, Biochemistry, 1965-69. Appaji Rao, N., Lecturer.

The investigation on plants FAD-hydrolase shows that the disulfide is essential for the cleavage of P-O-P bond, whereas the dithiol form is essential for the cleavage of C-O-P bond of FAD. The unambiguous location of the change in this molecular architecture is being investigated.

581.1926

169.66 Ravindran Nair, P. N. Induced mutations in plants. Kerala. Botany, 1965-69. Abraham, A., Professor and Head of the Department.

Investigations on the effect of various chemical mutagens on plants are being carried out.

581.192

170.67 Siddiqi, Irfan Ahmad. Studies on seed-fats and their fatty acids. Aligarh, chemistry, 1966-69. Osman, S. M., Reader.

581.192

171.68 Sivakumaran, S. Chemical studies on Rubia Cordifolia Linn. Delhi, Chemistry, 1966-69. Seshadri, T. R., Professor Emeritus.

581.192

172.69 Srinivasa Achar, Balebail. Nucleic acid metabolism. I.I.S., Bangalore, Biochemistry, 1961-67. Vaidyanathan, C.S., Asstt. Professor.

An enzyme system catalysing the deamination of cytosine nucleosides to uracil nucleosides and ammonia has been purified to about 50 folds from germinating green gram, Phaseolus aureus seedlings. Another enzyme, uridine hydrolase, catalysing the hydrolytic cleavage of uridine to uracil and ribose has also been purified to about 132 folds from germinating green gram seedlings.

Ind. Jour. Biochem. 3(3) ; 1966 : p.133-138.

581.1925

173.70 Subbarayan, Challa. Studies on carotenoids and vitamin A. I. I. S., Bangalore, Biochemistry, 1961-67. Cama, Homi R., Professor.

Isolation and partial purification of a carotenoid-protein complex from mangoes have been achieved.

The metabolism of epoxy-β-carotene has also been studied.

(1) Anal. Biochem. 12 : 1965 : p.275 ; (2) Biochem. Jour. 99 : 1966 : p.308 ; (3) Ind. Jour. Biochem. 3 ; 1966 : p.225 ; (4) Ind. Jour. Chem. 2 ; 1964 : p.451 ; and (5) ibid. 3 : 1965 : p.463.

581.1926

174.71 Subramanian, Kiranur Narayanswami. Regulation of nitrate reduction in Neurospora crassa. I. I. S., Bangalore, Biochemistry, 1963-67. Sarma, P. S., Professor.

The induction and repression of nitrate reductase on transfer to sole nitrate medium have been studied in N. crassa. An iron complex present in the organism, XFe and many amino acids have been found to repress nitrate reductase to different degrees. Glutamine, asparagine and arginine completely stopped enzyme formation. Catalase, induced subsequent to nitrate reductase induction, has also been found to be controlled indirectly by amino acids repressing nitrate reductase.

581.1921

175.72 Subramonia Iyer, Krishna Iyer. Studies on plant proteins. I. I. S., Bangalore. Biochemistry, 1964-68. Vithayathil, P. J., Asstt. Professor.

It is proposed to study the nature of the proteins isolated from the leaves of healthy and 'spiked' sandal trees. The knowledge about the types and quantities of the different proteins is expected to provide information regarding changes that are intimately connected with the spike disease of sandal.

581.19296

176.73 Susheelamma, N. S. Isolation and characterization of glycoproteins and their components from the pericarp of sorghum. I. I. S., Bangalore, Biochemistry, 1966-69. Virupaksha, T. K., Lecturer.

A glycoprotein fraction has been isolated from sorghum pericarp by extraction with 15% trichloroacetic acid. Fractionation of the glycoproteins by sephadex gel filtration and ion exchange chromatography is in progress. An amino acid with properties different from that of proline or hydroxyproline has been detected in hydrolysates of sorghum pericarp glycoproteins.

581.19296

177.74 Thanki, Ramesh J. Metabolic transformations during germination of gamma-irradiated castor seeds. Patel, Chemistry, 1961-65. Patel, R. D., Professor and Head of the Department.

A special variety (S-20) of castor seed has been irradiated with different doses of gamma-rays and then germinated for different periods in chemically purified and sterilized sand at a constant temperature of 30°C in dark. The following factors have been determined : Amylase, lipase and ascorbase activities, ascorbic acid, carbohydrates, amino acids, and the glyceride composition has been studied in detail. These factors will be correlated to explain the metabolic transformations.

581.192

178.75 Thapar, Gurubachan Singh. Biochemical studies on toxigenic and non-toxic strains of Aspergillus flavus. Poona, Nutrition Research Laboratories, Hyderabad, 1964-67. Tulpule, Purushottam Gopal.

A survey of the fungal contamination of groundnut crop has indicated that only certain strains of A. flavus are capable of producing aflatoxins, which are potent liver toxins for mammals and birds. Morphologically, the toxigenic and non-toxic strains of the fungus are identical. Biochemically, however, these two types of strains are different in their chemical composition and nutrient requirement. Micronutrients, such as, Zn, Cu, Cd and Co are found to influence aflatoxin production by A. flavus.

581.1921

179.76 Upadhyay, Rajiv Ranjan. Investigations of the chemical constituents of Jasminia auriculatum. Banaras, Chemistry, 1965-67. Deshpande, S. M., Reader.

The presence of indole, mannitol and potassium ions in the leaves of Jasminia auriculatum has been established. The non-saponifiable portion of leaves consists of mainly lupeol and waxy substances, whereas both the saturated and unsaturated fatty acids, namely, palmitic, stearic, oleic, linoleic and linolenic acids are present in saponifiable portion. Further work over a substance (oH-$3500^{cm^{-1}}$) isolated herein, is in progress.

581.192

180.77 Vaidyanathan, T. S. Chemistry and biosynthesis of proteins. Madras, Biochemistry, 1964-67. Shanmugasundaram, E. R. B., Professor.

The erythrocyte stromal proteases and the peptides of Aspergillus nidulans are under study.

581.19296

181.78 Vyas, Dineshchandra Natavarlal. Influence of pre-germination chemical treatments on metabolic transformations during germination of groundnut. Patel, Chemistry, 1961-66. Patel, R. D., Professor and Head of the Department.

Conversion of fat into carbohydrates during germination of olegenous seeds has been studied. The rate of conversion depends upon germination. Germination rate has also been studied by applying pre-germination chemical treatments to the seeds. The following factors have been determined : (1) Lipase activity ; (2) Amylase activity ; (3) Vitamin C ; (4) Ascorbase ; (5) Free amino acids : (6) Reducing and non-reducing sugars ; (7) Amylose ; and (8) Starch. These factors will be correlated with the glyceride composition of the oil obtained from seedlings germinated for different periods. Metabolism of fatty acids during germination is a problem of great interest. Of the unsaturated and saturated acids, which is metabolised first, is a puzzle still unsolved. A critical study of glyceride composition in relation to factors, such as, above, may be of help in arriving at some workable conclusion.

581.192

Pathology

182.79 Mitra, Salil Kumar. Studies on leaf spot disease caused by some species of Pestalotia and Pestalotiopsis. Allahabad, Botany. 1961-66. Tandon, Ram Narain, Professor (Retd.).

Several isolates of Pestalotia and Pestalotiopsis causing leaf spot diseases in economic as well as ornamental plants have been isolated and their taxonomic studies are in progress. For physiological investigations, 3 pathogenic species of Pestalotia and 2 of Pestalotiopsis, which are new records for our country, have been selected. The influence of carbon, nitrogen sources and different vitamins on the growth of these fungi has been studied. Pathological studies have also been undertaken.

581.2

183.80 Pushpavathy, K. K. Pathological anatomy of Launea asplenifolia infected with Puccinia butleri. Delhi, Botany, 1963-67. N. Singh.

581.2

184.81 Satya, Hari Narayan. Taxonomy and pathogenicity of the genus Pestalotiopsis. Vikram, Motilal Vigyan Mahavidyalaya, Bhopal, 1966-70. Saksena, S. B., Professor of Botany, University of Saugar, Sagar.

581.2

Parasitic Diseases

185.82 Arjuna Rao, V. Antibiosis in soil. Madras, Botany, 1964-68. Sadasivan, T. S., Professor.

Soil samples from the 'wilt-sick' and 'wilt-free' soils of cotton fields have been collected. Microorganisms have been isolated and tried for antagonism against cotton wilt pathogen, i.e. Fusarium vasinfectum. Those organisms which are antagonistic to F. vasinfectum will be mixed with soil to see the antibiosis. A substitute for soil-oats as inoculum is under trial.

581.2326

186.83 *Bandyopadhyay*, Narayanchandra. Investigations of Bamboo-rot caused by some wood rotting Basidiomycetes. Calcutta, Botany, 1963-67. Banerjee, S. N., Lecturer.

581.2326

187.84 *Bharat Rai. Succession of fungi on decaying leaves of* Saccharum munja. Banaras, *Botany, 1966-67. Roy, R. Y., Reader.*

Water content, pH, relative humidity, air temperature and air spora of decaying leaves have been recorded monthly. Stomatal frequency of leaves has been studied. Fungal colonizers on decaying leaves have also been isolated and identified. Some new species, i. e. Lacellina fertilissima sp. nov., Pithomyces graminicolum sp. nov., Fusariella sp. nov. and Schizotrichella sp. nov. have been isolated. Fertility of setae has been discovered in Lacellina and Schizotrichella.

581.2326

188.85 Charudattan, R. Studies in fusarial strains. Madras, Botany, 1963-67. Sadasivan, T. S., Professor.

Eighteen isolates of Fusarium vasinfectum Atk. have been collected from India, Italy, United States of America and Russia and screened for differences in the pathogenicity on two cottons, K 6 and Me 211. Significant differences have been noted. Work on the biochemical differences between these isolates is in progress.

581.2326

189.86 Dhigran, M.L. Studies on groundnut mosaic virus. Aligarh, Botany, 1965-68. Khan, Abrar M., Reader and Chanulu, V. V., Indian Agricultural Research Institute, Delhi.

581.234

190.87 Ghosh, Sudhir Kumar. Nutritional physiology and biochemistry of the isolates of stem-rot fungus, Macrophomina phaseoli (Manbel.) Ashby. Kalyani, Plant Pathology, 1966-69. Sen, C., Lecturer.

Macrophomina phaseoli (Manbel.) Ashby has been isolated from jute, justicia, kochia, gram stubble and groundnut and its degree of pathogenicity on jute tested. A suitable synthetic media has been established and the effect of temperature, pH and different organic and inorganic nitrogen sources have been studied. Growth measurements have invariably been made on a dry weight and/or protein nitrogen basis.

581.2326

191.88 Gupta, P. C. Study on the biology of certain white flies in relation to plant virus disease. Gorakhpur, Botany, 1963-67. Bhargava, K. S., Professor and Head of the Department.

A detailed study on the morphology and certain aspects of biology of white fly, Bemisia gossypiperda on a variety of host plants has been made. Virus vector relationship of tomato leaf curl with white fly has been studied. Folidol, endrex, basudin and D. D. T. have been tried for the control of insect vector and basudin has been found to be most effective.

581.234

192 89 Khan, Nisar Mohammad. Studies on root-knot nematode of vegetables. I. A. R. I., Delhi, Mycology & Plant Pathology, 1962-68. Gopal Swarup, Plant Pathologist-Nematodes.

Attempts are being made to investigate the nature of damage to vegetable crops. A large number of vegetable crops are being tested to evolve differential hosts and to test the efficacy of available chemicals.

581.233

193.90 Koshy, P. K. Studies on cyst nematode, Heterodera *trifolii*. I. A. R. I., Delhi, Mycology & Plant Pathology, 1964-68. Gopal Swaroop, Plant Pathologist-Nematodes.

Pathogenic effects of the nematode on arhar plants are being studied. Morphological studies on nematode are also in progress.

581.233

194.91 Manzoor Saeed. Studies on plant parasitic nematodes. Aligarh, Botany, 1965-68. Khan, Abrar M., Reader.

581.233

195.92 Misra, Purnima. Critical studies on Ravanelia of Abrus precatoriusl. Udaipur, Plant Pathology, 1966-68. N. Prasad, Dean, S.K.N. College of Agriculture, Jobner.

Studies have been undertaken on the germs ravanelia of the family Caesalpinatae. All possible collections have been made and their comparative morphology is being studied.

581.233

196.93 Rama Krishana Rao, K. Biochemical studies on plant pathogens. Madras, Biochemistry, 1964-67. Shanmugasundaram, E. R. B., Professor.

The amino acid changes and amide synthesis in host-parasite interaction have been studied to understand the responses of the resistant and susceptible hosts to infection by parasite. Mutants of the pathogen have been produced and their pathogenicity has been studied. The nutritional requirements of the mutants have also been studied. Variations in the intracellular peptides, free amino acids and enzyme activities are under investigation. Tyrosinase activity has been detected in the wild strain. A pigment formed by one of the mutants has also been identified.

581.232

197.94 Sahambi, Harbans Singh. Studies on seasmum phyllody virus with special reference to host range and relationship with its vector Grosius albicinctus Distant. I. A. R. I., Delhi, Mycology & Plant Pathology, 1959-67. Raychaudhuri, S. P., Head of the Division.

Host range and virus-vector relationships have been studied in detail. The virus can infect 91 plant species belonging to 39 genera and 12 families. The virus is of persistent type and undergoes an incubation period of 15-23 days in the vector during May-June but during winter it is considerably prolonged.

581.234

198.95 Shukla, Virendra Nath. On plant parasite nematodes. I. A. R. I., Delhi, Mycology & Plant Pathology, 1964-68. Gopal Swarup, Plant Pathologist-Nematodes.

A number of vegetable crops have been found to be attacked with fungi alongwith nematodes. The interrelationship between fungi and root-knot nematodes in causing disease and the histopathological changes brought about in diseased plants by simultaneous infections with fungus and nematode will be studied.

581.233

199.96 Verma, V. S. Inhibition of plant viruses by extracts of some herbaceous and medicinal plants. Aligarh, Botany, 1965-68. Khan, Abrar M., Reader and Ray Chowdhury, S. P., Head of the Division of Mycology & plant pathology, Indian Agricultural Research Institute, Delhi.

581.234

Galls

200.97 Bedi, Krishna. Pathological anatomy of galls caused by Albugo. Delhi, Botany, 1964-67. H. Singh, Lecturer.

581.27

201.98 Jain, Kanti. Studies on the biology of mango galls by Amardiplosis brunneigallicola Rao. in tissue culture. Rajasthan, Botany, 1964-66. Arya, Harish Chandra, Reader.

The gall tissues have been grown on White's basal medium supplemented with casein hydrolysate. Continuous cultures of these tissues have been maintained. Nutritional studies have been conducted with special reference to carbohydrates, organic and inorganic nitrogen, pH, temperature, vitamin and auxin requirements of the tissues. Specific effects of certain amino acids on the growth requirements have also been studied.

581.27

202.99 Uma Kant. Studies on plant galls induced by insects and mites. Rajasthan, Botany, 1963-66. Arya, Harish Chandra, Reader.

About half a dozen plants of galled nature are being studied and compared with their normal counterparts to understand the anatomy of the galls. Physiological studies of such tissues are being carried out in tissue culture. Two such tissues, viz. Salvadora gall and Zizyphus gall have been isolated. It is found that the latter has grown successively in subsequent transfers. Nutritional studies towards their growth requirements have also been made.

581.27

Maturation

203.100 Chakrapani, Pratiba. Aeropalynological studies in the twin cities of Andhra Pradesh. Osmania, Botany, 1966-70. Bhoj Raj, Reader.

Aeropalynological studies have so far been attempted in a few places only. The present work is intended to be an intensive exploration of the pollen and spore spectrum over the twin cities with particular reference to pollen allergy.

581.32

204.101 Vora, Avinash B. A study of developing spike of some crop plants as influenced by changes in environmental conditions. Gujarat, Botany, 1961-68. Chinoy, J. J., Professor and Head of the Department.

Some varieties of oats, local as well as exotic, have been sown. Experiments have been conducted by vernalizing the seeds and then transfering them under different lights -- continuous light, normal day light and reduced light. Various growth characteristics, dry weight and fresh weight have been taken and changes observed in shoot apex during vegetative and from vegetative to reproductive phases. This has been correlated with the concentration of ascorbic acid and sulpha hydryl contents of both shoot apex and leaf. The work on the *histochemistry of nucleic acid*, ascorbic acid and histones is in progress.

581.3

made to propose the proper mixture of the species for afforestation in the area.

581.5263

217.114 Pandya, Surendra Mahendrarai. Ecology of river Narmada catchment area : Ecological survey of the forest from Amarkantak to Manot. Gujarat, Botany, 1963-67. Pandeya, S. C., Reader.

Systematic ecological study of any river catchment area is a prerequisite for any scheme on flood controls and soil conservation via afforestation. It is proposed to investigate the phytosociology, under soil-climate-vegetation survey, of the forests in the catchment area of river Narmada. The pattern of distribution of the forest vegetation will be worked out on quantitative basis and the type of underlying soil established. The differences in the climate pattern in the area will also be studied to understand their role in the determination of the distributional pattern of the natural communities.

581.5263

218.115 Savitri Singh. Physiological studies in plants of saline environment. Bombay, Wilson College, Bombay, 1963-67. Joshi, G. V., Professor of Botany, Wilson College, Bombay.

Sesuvium portulacastrum, a saline mud-flat halophyte, has been analysed to study the effect of NaCl and gibberellic acid on plant growth and $C^{14}O_2$ light and dark fixation. The effect of EDTA on crassulacean metabolism and Co_2 light fixation in Bryophyllum pinnatum has also been studied. The investigation correlates the effect of NaCl and growth stimulation on metabolic processes of saline and non-saline succulents.

581.5263

219.116 Tej Bahadur Singh. Ecological investigations on a piece of land on the river. Banaras, Botany, 1966-68. Ambasht, R. S., Lecturer.

The research envisages a study of (1) Production of crops and weeds in their annual life cycles ; (2) Monthly production of rooted hydrophytes in running water ; (3) Effect of chemicals on germination behaviour of weeds under various ecological conditions ; (4) Effect of topography on growth performance of weeds ; and (5) Estimation of conservation value of weeds.

581.526

Communities

220.117 Kuruvilla, K. Ecology of Dangs forest, Gujarat. Gujarat, Botany, 1964-67. Pandeya, S.C., Reader.

The vegetation has been studied by phytosociological method and the forest communities have been arrived at by statistical methods. The productivity of the 5 communities, so established, has been studied per unit area. Standing biomass of 5 important forest species has been estimated as given by Whittakar, Odum, Statoo, Bray etc. Soil profiles have been studied from all the 3 topographic situations, namely, top, slope and foot of hills.

581.55

221.118 Sarin, Y. K. Phytosociological studies of Budarwah forest with special emphasis on vegetable raw materials. Jammu & Kashmir, Botany, 1965-68. Kaul, V., Reader and Head of the Department.

The study of phytosociology and the determination of the ecological status of the forest types has been undertaken. A general survey has been completed and various vegetable raw materials collected. The study involves a lot of analytical work of plant and soil samples.

581.55

Economic Botany

222.119 Shukla, K. C. Studies on virus diseases of some economic plants. Gorakhpur, Botany, 1964-67. Bhargava, K.S., Professor and Head of the Department.

Studies on virus diseases of certain economic plants, like maize and sugarcane, have been undertaken with reference to properties, host range, insect transmission, effect on the host plant, inhibition of the virus, serology and control methods.

581.6

Medicinal Plants

223.120 Durani, Predeman Krishan. Biosystematic studies on Plantago species in Kashmir : Their cytomorphology, geography and environmental relationships. Jammu & Kashmir, Botany, 1966-70. Kaul, V., Reader and Head of the Department.

The polymorphic species of genus Plantago is a common medicinal weed growing in Kashmir in all sorts of habitats. The polymorphic nature of the plant will be studied in detail and correlated with the ecological and geographical conditions. Detailed cytomorphological studies will also be carried out.

581.634

224.121 Gupta, Purushottam Lal. Autecology of E. alba and Launaea species of medicinal plants. Banaras, Botany, 1965-67. Misra, R., Professor and Head of the Department.

Eclipta prostrata Linn. has been studied under the following heads : (1) Growth performance in varied habitats in different seasons ; (2) Differentiation of 'erect' and 'prostrate' forms by culture experiments ; (3) Germination of seeds ; (4) Vegetative propagation ; and (5) Physical and chemical anaylsis of soil from various localities.

581.634

225.122 Maiti, Ratikanta. Cytology and anatomy of some of the medicinal plant species and an investigation on certain aspects of the weed flora of Bengal. Calcutta, Botany, 1963-67. Datta, P. C., Professor, Indian Association for Cultivation of Science, Calcutta.

581.634

226.123 Shetty, M. Subbayya. Autecological aspects of certain medicinal plants. Banaras, Botany, 1965-66. Misra, K. C., Reader.

Seed germination behaviour of Biophytum sensitivum has been investigated in relation to dormancy, temperature and light. The fresh and dry matter productivity of the plant in different localities at Varanasi has been estimated. Experimental studies on the growth of the plant have also been done in varying edaphic and climatic factors to confirm the field observations.

581.634

227.124 Siddiqui, Mohammad Ozain. Survey of medicinal plants of Gorakhpur forests. Gorakhpur, Botany, 1965-67. Dixit, Surya Narain, Lecturer.

A systematic survey of the forests is being carried out to explore their vegetation. Special emphasis is being laid on the information about the medicinal properties of the plants from local inhabitants and other authentic sources. About 400 plants have been successfully investigated.

581.634

Weeds

228.125 Bhat, Jawahar Lal. Study of ecological life history of two weeds of crop fields and methods of their control. Vikram, Botany, 1966-70. Mall, L. P., Reader and Head of the Department.

581.65

229.126 Jain, Narendra Kumar. Autecology of three Forb species, namely, Vernonia cineria, Less., Borreria articulars (Linn.f.) F. N. Will and Classia pumila, Lamk., and their behaviour in the grass vegetation of Jabalpur.

Jabalpur, Botany, 1964-67. Misra, R., Professor and Head of the Department of Botany, Banaras Hindu University.

Ecological life history of the three plants, namely, Vernonia cineria, Borreria articularis and Cassia pumila is under investigation with special reference to grasslands of Jabalpur. Analytical studies of the vegetation of these plants and underlying soils are being corroborated by pot culture treatments.

581.65

230.127 Jayachandra, H. Narasihmiah. Studies in weed ecology. Baroda, Botany, 1965-67. Pathak, C. H., Reader.

The ecological study of two common weeds has been undertaken. Phytosociology of these weeds, their germination behaviour under different light conditions, temperatures, storage and under the influence of various salts and germination inhibitors ; post-emergence performance in soils of different textures, at different levels of soil moistures, at different levels of salts of calcium and sodium ; and competitive ability of these weeds with other aggressive weeds and crop plants form the theme of this project.

581.65

231.128 Khosla, S. N. Effect of herbicides on the cytomorphology of weeds. Bombay, Institute of Science, 1963-67. Dnyansagar, V. R., Professor.

Cassiatora, Achyranthes aspera and Ruellia tuberosa have been selected for a study of the effect of the herbicides 2, 4-D, MH and sodium arsenite on their cytomorphology. It is observed that 2, 4-D inhibits mitosis, germination, and root and shoot growth, causes epinastic curvatures and tumors etc., and is toxic in nature. MH has been found to inhibit mitosis and growth of apical meristems, cause leaf abnormalities and is non toxic in nature. Sodium arsenite also inhibits mitosis, germination and vegetative growth, and is toxic in nature.

581.65

232.129 Ram Pratap Singh. Studies into autecology of a few common weeds of Azamgarh. Gorakhpur, Botany, 1963-67. Sahai, Rajendra, Reader.

Detailed ecological life history studies of a few common weeds of Azamgarh District are being worked out. The following schedule is being followed for each one of them : (1) Morphological and phenological studies of the plants collected from different habitats ; (2) Growth behaviour in response to ecological factors ; and (3) Influence of biota on the plant as a whole.

581.65

233.130 Shukla, Satya Prakash. Ecological study of two weeds of crop fields. Vikram, Botany, 1965-69. Mall, L. P., Reader and Head of the Department.

581.65

234.131 Tamular, Ramaprabhu. Studies on some common aquatic weeds of cultivable fresh waters. Calcutta, Botany, 1957-67. Independently.

581.65

Histology & Cytology

235.132 Bahal, Maya Rani. Physiological effects of osmotically active substances on plants. Banaras, Botany, 1965-67. Talpasayi. E. R. S., Lecturer.

Cellular differentiation in Anabaena cylindrica and Anabaena ambigua is being studied at the cytochemical level. Changes that take place in the cells during differentiation into heterocysts—polyphosphates, carbohydrates, appearance and disappearance of enzymes—are also being studied.

Z. fur pflan. 56 (1) ; 1967 : p. 100-101.

581.876

236.133 Bandyopadhyay, Pradyotkumar. Karyo morphological studies in certain ducotyle doroustam. Calcutta, Botany, 1963-67. Sarma, A. K., Reader.

581.87

237.134 Bhattacharyya, Rekha. Cytotaxonomic studies of different taxa of Habjafoezingiberaceae and investigation on the response of chromosomes to hormones treatment. Calcutta, Botany, 1963-67. Sarma, A. K., Reader

581.87

238.135 Ghosh, Soumendra Nath. Organisational pattern of chromosome. I. I. T., Kharagpur, Agricultural Engineering, 1964-67. De, Deepesh N., Asstt. Professor.

It is known that residual protein forms the backbone of chromosome but the nature of this protein is still unknown. This research programme has been undertaken to determine the nature of residual protein. Taking onion, Allium cepa L. as the material, it has been shown cytochemically that a collagen. like protein, is present in the backbone of the chromosome.

581.87

239.136 Haris Chandra. Self consistent study of nucleus. Calcutta, Botany, 1964-68. Banerjee, N. K.

581.87

240.137 Hegde, Balkrishna Anant. Study of cell division as on endogononch rhythmic phenomenon. Shivaji, Botany, 1965-67. Karve, A. D., Lecturer.

Mitosis in growing species of higher plants has been reported to follow a diurnal rhythm. This study is planned to investigate the effect of various factors on this rhythm and to find out if it is a true endogenous rhythm or not. Work conducted until now has shown a marked effect of the light-dark regimen.

581.87623

241.138 Kapoor, Jagdish Narain. Studies on growth, physiology and biochemistry of some plant tissues in tissue culture. Rajasthan, Botany, 1965-67. Arya, Harish Chandra, Reader

Callus tissues from the following plants have been established : (1) Abelmoschus esculentus W & A ; (2) Phaseolus radiatus L. ; (3) Phaseolus vulgaris L. ; and (4) Arachis hypogea L. Best growth promoting media have been established for different types of callus thus obtained. Studies are being continued for finding out the nutritional requirements of the callus obtained and factors responsible for chlorophyll development. It has a direct bearing on providing a cheap, balanced and nutritive callus tissue for human consumption.

581.82

242.139 Maini, Satyabhushan Harbanslal. Studies on normal and tumor plant tissues. Baroda, Biochemistry, 1965-67. Srivastava, S. K., Reader.

It is proposed to study the purification and characterisation of the enzyme NAD glycohydrolase present in tumor tissues of plants cultivated in vitro but not in normal tissues, and the effect of anti tumor drugs, plant hormones and various inhibitors on this enzyme.

581-82

243.140 Sudhakaran, Iyyani V. Cytogenetic studies in Vinca rosea. Bombay, Institute of Science, 1963-67. Dnyansagar, V. R., Professor.

In Vinca rosea, chromosome number 16 with three types of chromosomes. In mitosis, nucleoli persist till anaphase. Meiosis is regular and chiasma frequency 1.7. Negatively correlated interchromosomal chiasmata distribution occurs. In induced tetraploid, abnormalities have been noticed in high frequencies with low seed setting. Meiotic and mitotic abnormalities have also been noticed in X_1 generation raised from seeds irradiated with gamma radiation.

581.87

244.141 Vajranabhaiah, S.N. Physiological and morphogenetic studies of plant tissues grown in sterile culture. Baroda, Botany, 1965-67. Mehta, A. R., Reader.

Patterns of growth and cell divisions in different fractions of suspension cultures derived from the roots of higher plants have been worked out. The cell division ceases in cultures shortly after sub-culture to fresh media. Efforts are being made to investigate the nutritional factor or factors responsible for such a decline in mitotic activity.

581.82

Regional Botany

Desert Plants

245.142 Biswas, Pranabkumar. The study of morphology and cytogenetics of some diploid arid plants. Calcutta, Botany, 1961-67. Bhaduri, P. N., Professor of Botany, Burdwan University.

581.90954

246.143 Chatterjee, Achala. Survival values and germination studies on the seeds of some arid zone plants. Jodhpur, Botany, 1965-67. Chatterji, Usha Nath, Professor and Head of the Department.

In arid conditions, the failure of germination of desert seeds hampers the establishment of new species. This aspect of some desert grass species is under observation in laboratory and in field conditions. These are being tested under optimum as well as least favourable conditions for germination and the subsequent survival of the seedlings.

581.90954

247.144 Chawan, Deen Dayal. Eco-physiological studies of arid zone plants with special reference to rhizology. Jodhpur, Botany, 1966-69. Sen, D. N., Lecturer.

The eco-physiological studies of arid zone plants are being carried out to understand the biology of the flora, in general, and the rhizology and seed germination behaviour—the most important phases of the plant life to adapt themselves under extreme xeric conditions—in particular.

581.90954

248.145 Dixit, Gajanan. Morphology and physiology of seed germination of some desert grasses. Rajasthan, Botany, 1965-67. Tiagi, Brahmadatta, Head of the Department.

Anatomy of the inflorescence, flower, seed and fruit is being studied in Panicum, Cenchrus, Digitaria, and Pennisetum. Effect of temperature, light, pH, age, variety and chemicals, like vitamins, hormones, amino acids and other organic and inorganic compounds on the germination and seedling growth of Pennisetum typhoides will also be studied.

581.90954

249.146 Jain, Nisha. Biochemical studies on some arid zone plants. Jodhpur, Botany, 1964-66. Chatterji, Usha Nath, Professor and Head of the Department.

Studies on the tannin contents of some arid zone plants are being done in relation to certain metabolites. The carbohydrate and nitrogen metabolism during germination of seeds of certain arid zone plants have been studied. The effect of tannins on the metabolism during germination of seeds has also been studied.

581.90954

250.147 Khalsa, J. K. Some of the biochemical aspects of certain arid zone plants. Jodhpur, Botany, 1964-66. Chatterjee, Usha Nath, Professor and Head of the Department.

The study deals with alkaloid metabolism of some arid zone plants in relation to certain organic metabolites—carbohydrate ascorbic acid and proteins. The relationship of these metabolisms with alkaloid contents and their fall and rise have been studied in detail. The effect of some chemicals has also been noted on these metabolisms.

581.90954

251.148 Mohnot, Kamal. Further studies on the germination of seeds of certain arid zone plants. *D.Sc.* Jodhpur, Botany, 1966-68. Chatterji, Usha Nath, Professor and Head of the Department.

Advanced studies concerning germination of seeds of certain arid zone plants are proposed to be undertaken. Effect of important factors regulating the mechanism of germination will be taken into consideration. Special emphasis will be given to eco-physiological and biochemical changes which take place during germination.

(1) A gynoecium in the ovary of Rhinanthus Major Ehrh. (with B. Tiagi) Curr. Sci. 30 ; 1961 : p. 427-428 ; (2) Chemico-physiological studies on imbibition and germination of seeds of Parkinsonia aculeata Linn. (with Usha Nath Chatterji). Osterr. Bot. Z. 111 ; 1965 : p. 521-526 ; and (3) Chemico-physiological studies on imbibition and germination of the seeds of Cassia occidentialis Linn, (with Usha Nath Chatterji). Proc. Ind. Sci. Cong. 3(6); 1966 : p. 308-309.

581.90954

252.149 Mullick Prakash. Physiology and biochemistry of seed germination of some of the arid zone plants. Jodhpur, Botany, 1965-67. Chatterji, Usha Nath, Professor and Head of the Department.

Some leguminous seeds have been selected for investigation. Their general germination condition, hard seed coat problem and the effect of different inorganic and organic chemicals, including growth promoters and inhibitors and some vitamins, on the germination and growth of the seedlings have been studied. Some chemical and biochemical changes in the process of germination have also been observed.

581.90954

253.150 Trivedi, Mahendra Lal. Anatomical studies on the desert plants of Rajasthan. B. I. T. S., Pilani, Botany, 1965-68. Pillai, S. K., Professor and Head of the Department.

The research deals with the development of anatomical aspects of certain desert plants, like Prosopis, Capparis, Crotalaria etc. Apical meristems, seedling, nodal, floral anatomy and primary vascular differentiation tracing right from the zygote to the mature embryo, are being studied in detail.

581.90954

Water Plants

254.151 Chirputkar, Mira Bhikaji. Physiological studies in marine plants of Bombay Bombay, Wilson College, Bombay, 1964-67. Joshi, G. V., Professor of Botany, Wilson College, Bombay.

Certain mangrove plants exhibit a peculiar phenomenon of vivipary. An attempt is being made to trace the changes in the metabolic patterns exhibited by green leaves and the radicles which are just below it by studying their photosynthesis, inorganic and organic constituents and enzyme systems. This is to correlate the changes from the leaves to the radicles.

581.92

255.152 Damodaran, Rayaroth. Meiobenthos of the mud-bank regions of Kerala coast. Kerala, Marine Biology & Oceanography, 1964-67. Kurian, C. V., Professor.

Studies on the bottom fauna of the mud-bank areas of Kerala coast based on dredge and grab collections are in progress. Special attention is being paid to the qualitative and quantitative nature of the meiobenthos. The relationship of the bottom fauna to the substratum and other physico-chemical factors is also under study.

581.92

256.153 Munawar, Mohiuddin. Limnological studies in certain polluted and unpolluted freshwater ponds of Hyderabad, A. P. Osmania, Botany, 1961-67. Suxena, Mahender Raj, Professor and Head of the Department.

The work is based on the data collected on the physico-chemical complexes and phytoplankton of three freshwater ponds differing substantially in the degree of organic pollution. The observations have been broadly outlined as the biotope, biocenose and algal productivity.

581.929

257.154 Patil, B. A. Physiological studies in marine plants. Bombay, Wilson College, Bombay, 1963-67. Joshi, G. V., Professor of Botany, Wilson College, Bombay.

Marine algae have a salt-rich metabolic environment which can modify many physiological processes. The present investigation has been undertaken to study the seasonal variations in chemical constituents of sea water and marine algae. Ulva lactuca at Bombay. Photosynthetic studies have been made by feeding the algae with $NaHC^{14}O_3$ in different seasons and at different lengths of time to trace the rate at which different compounds are synthesised.

581.92

258.155 Ramamurthy, V. D. Marine microbiology. Annamalai, Marine Biology, 1964-67. Seshaiya, R. V., Director, U. G. C. Centre for Marine Biology, Porto-Novo

Marine microbiological work with special reference to diatom and yeasts and their distribution in space and time is in progress. Laboratory investigations of the cultures of algae and yeast and the factors governing their growth and cell division are also being carried out.

(1) Comparative hydrographical studies in the near-shore and estuarine waters of Porto-Novo. Jour. Annamalai Uni. 26 ; 1965 ; (2) On the culture of the diatom Melosira sulcata. Proc. IAS. 62 ; 1965 ; p. 25 ; (3) Antibiotic properties of the tissues of some bivalves. ibid. 64 ; 1966 ; p. 111 ; and (4) Phosphorus concentration during red water phenomenon in the near-shore waters of Porto-Novo. Curr. Sci. 35(4) ; 1966 ; p. 100.

581.92

259.156 Sankaran Unni, K. Ecological study of the flora of Doodhadhari tank, Raipur. Ravishankar, Botany, 1964-68. Sharma, Vinod Behari. Asstt. Professor.

The study includes the analysis of the vegetation and its seasonal succession, contour mapping of the tank along with the collection and analysis of the bottom mud, water and the plants. The primary productivity of the tank during different seasons of the year and the total productivity in a year is also being studied.

581.92

260.157 Zutshi, D. P. Studies in the ecology of some Kashmir lakes. Jammu & Kashmir, Botany, 1964-67. Kaul, V., Reader and Head of the Department.

Kashmir lakes are famous throughout the world for their exquisite beauty. Botanically their importance lies in the wealth of plant life which they sustain. These plants are economically very important as an alternative source of food. Studies are being conducted on the vegetational patterns in relation to the environmental complex.

581.929

Plants of Specific Places

261.158 Balkrishnan, Namiyath Puthanpurayil. Flora of Jowai and vicinity, Khasi and Jaintia Hills District, Assam. Gauhati, Botanical Survey of India, Calcutta, 1965-68. Sathyanarayana Rao, Aragula, Regional Botanist, Botanical Survey of India, Calcutta.

The flora of Jowai and surrounding areas (25° 15′—25° 5′—92° 20′ E) in Assam is very little known. Frequent repeated collections are being undertaken in the area during all seasons. So far 430 species of plants have been collected and are being examined from floristic, ecological and economic points of view.

581.954162

262.159 Cramer, L. H. Taxonomic and floristic studies on the flora of Galle, Ceylon. Bombay, Botanical Survey of India, Calcutta, 1963-67. Santapau, H., Director, Botanical Survey of India, Calcutta.

581.95493

263.160 Deshpande, Madhukar B. A study of the flora of Tuva-Timba area in Panchmahal District, Gujarat. Patel, Botany, 1965-67. Shah, G. L., Reader.

The flora of many parts of Gujarat State is not known. The present work has been undertaken since it is imperative to revise the provincial floras to have a better knowledge of the plants occuring in different provinces. About 450 plants have been collected and many of them identified. All the plants are being critically examined and their descriptions checked with local floras. Most of the plants with their details have been sketched.

581.95475

264.161 Guha Bakshi, D. N. Flora of Murshidabad District. Calcutta, Botanical Survey of India, Calcutta, 1965-68. Mukerjee, S. K., Keeper, Botanical Survey of India, Calcutta.

The research deals with the collection and identification of the phanerogamic and pterydophytic plants of the district and preparation of a floristic account of the area on the basis of the samples collected.

581.95414

265.162 Gupta, Vishwa Bandhu. The study of the vegetational pattern in relation to environment in the Bari-Bareli range, Bhopal. Vikram, Botany, 1966-70. Karnik, C. R., Lecturer.

581.9543

266.163 Joseph, Jesudas. Flora of Nongpoh and its vicinity, United Khasi and Jaintia Hills, Assam. Gauhati, Botanical Survey of India, Calcutta, 1964-67. Sathyanarayana Rao, Aragula, Regional Botanist, Botanical Survey of India, Calcutta.

About 1,000 species of plants have been collected from the Nongpoh area. These are being critically examined in the herbarium of the Botanical Survey of India, Shillong. The study will include an account of vegetation, an analysis of its floristic composition, detailed description of taxa with analytical keys etc.

581.954162

267.164 Malick, K. C. Flora of Purulia District. Calcutta, Botanical Survey of India, Calcutta, 1964-67. Mukerjee, S. K., Keeper, Botanical Survey of India, Calcutta.

The research deals with the collection and identification of the phanerogamic and pterydophytic plants of the district and preparation of a floristic account of the area on the basis of the samples collected.

581.95414

268.165 Raju, D. C. S. Flora of Eastern Dandakaranya. Banaras, Botanical Survey of India, Calcutta, 1964-67. Mukerjee, S. K., Keeper, Botanical Survey of India, Calcutta.

The research deals with the collection and identification of the phanerogamic and pterydophytic plants of the district and preparation of a floristic account of the area on the basis of the samples collected.

581.95414

269.166 Shah, Hiralal Punjalal. Study of vegetation and flora of Dhari Taluka in Amreli District, Saurashtra. Baroda, Botany, 1964-66. Chavan, A. R., Professor and Head of the Department.

581.95475

270.167 Sharma, Shiv. Flora of Jaipur District : A taxonomical and morphological survey. Rajasthan, Botany, 1964-67. Tiagi, Brahmadutta, Head of the Department.

Plants from different habitats and localities have been collected, preserved, identified and recorded with *the aid of field notes. In some difficult and interesting groups, studies have been made of epidermal system,* pollen grains, placentation, fruit and seeds. Economic uses of the plants—medicinal, as supplementary food and for afforestation—have also been recorded.

581.9544

271.168 Sreemadhavan, C. P. Taxonomic studies on the flora of Coimbatore District, Madras State. Calcutta, Botanical Survey of India, Calcutta, 1964-68. Subramanyam, K., Joint Director, Botanical Survey of India, Calcutta.

An intensive study has been undertaken of the flora of Boluvampatti R. F. Block No. 1, lying in Coimbatore District of Madras State. 1200 specimens have been collected and their detailed taxonomic study is in progress.

581.95482

272.169 Srivastava, Tribhuwan Nath. Flora of Gorakhpur. Gorakhpur, Botany, 1964-67. Dixit, Surya Narain, Lecturer.

The vegetation of Gorakhpur City area is being investigated to prepare an 'Illustrated Manual' on the flora of Gorakhpur. About 650 species have been thoroughly investigated. Special attention has been paid to collect information about the local names, economic uses and medicinal properties of the plants.

581.9542

273.170 Suryanarayana, B. Study of the flora of Dangs. Patel, Botany, 1965-68. Shah, G. L., Reader.

The study of the flora of Dangs forest in Gujarat State has been undertaken to know the flora of different parts of the State. Some of the areas, like Malegaon, Saputara and Sunda which have not been explored by earlier workers, have not been taken up for study. Every plant from the area has been critically examined and sketched. The descriptions have been compared with these given in local floras. During the course of the study, about 60 more plants have been collected which have not been recorded by earlier workers.

581.95475

274.171 Suryanarayana, Manda China. Some palynological investigations on the flora of Coorg, Mysore. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1963-67. Deodikar, G. B., Professor of Genetics & Economic Botany, Maharashtra Association for the Cultivation of Science, Poona.

Various species of flowering plants occurring in Coorg will be subjected to critical palynological investigations. The data thus collected will be utilised for any possible generalisations either in pure taxonomy or in

any of the applied fields, such as, melittopalynology.
581.95487

275.172 Vartak, Vaman Dattatraya. Studies on the flora and vegetation of parts on Poona, neighbouring districts and South Kokan. Poona. Maharashtra Association for the Cultivation of Science, Poona, 1954-66. Deodikar, G.B., Professor of Genetics & Economic Botany, Maharashtra Association for the Cultivation of Science, Poona.

Critical notes have been prepared on certain plant families, such as, Cyperaceae, Caesalpiniaceae and certain other genera and species, Local floras of Poona, Katraj, Sinhgad and adjacent areas have been examined. The flora of Gomantak has also been studied in detail.
581.954792

Spermatophyta

Morphology

276.173 Periasamy, K. Studies on seeds with ruminate endosperm. Madras, Presidency College, Madras, 1953-67. n.g.
582.0467

277.174 Shivana, K. R. In vitro culture of the reproductive organs of the seed plants. Delhi, Botany, 1964-67. Rangaswamy, N. S.
582.046

Flowering Plants

278.175 Stephen, J. Cytology of the endosperm in angiosperms. Kerala, Botany, 1963-67. Abraham, A., Professor and Head of the Department.
582.13

279.176 Sultana, Anis Fatima. Cytological and genetical studies in the genus Tephrosia pers. Osmania, Botany, 1963-67. Mohammed Hashim, Reader.

Five different species of Tephrosia are under study. Extensive population studies have been made of T. purpurea and its white variety which occurs occasionally. Crosses have been made between the two varieties to study the inheritance of corolla colour and pigmentation of testa. A biometrical study involving characters, like pollen grain measurements, is in progress.
582.13

Dendrology

280.177 Khosla, Prem Kumar. Cytomorphological studies of the woody elements of the Disciflorae and Calyciflorae of the Darjeeling and Khasi and Jaintia Hills with a special *reference to the trees of forestry importance. Panjab, Botany, 1963-67. Mehra, Pran Nath, Professor and Head of the Department.*

About 150 species of the woody elements of the families Disciflorae and Calyciflorae are being investigated. Out of these, 120 species and 38 genera have been reported cytologically for the first time. Since the research is primarily devoted to the trees of forestry importance, detailed ecological notes along with fruiting and flowering seasons have been documented.

582.1604

Angiospermae—*Dicotyledons*

281.178 Amar Singh. Cytomorphological studies of some woody elements of the Eastern Himalayas, with particular reference to their ecology and forestry importance. Panjab, Botany, 1962-67. Mehra, Pran Nath, Professor and Head of the Department.

A total of 150 woody species of families Leguminosae, Rosaceae, Protiaceae and Salicaceae have been cytologically worked out from the Eastern Himalayas, Khasi and Jaintia Hills, Assam. More than 100 species have been investigated for the first time. Interesting results have been obtained in regard to the aberrant meiosis and detection of cytotypes as well as morphological races.

583

282.179 Bandyopadhyay, Minakshi. Chromosome study of certain angiosperms and an investigation of the effects of physical and chemical agents on chromosomes. Calcutta, Botany, 1962-67. Sarma, A. K., Reader.

583

283.180 Bawa, Kamal Jit Singh. Cytomorphological studies on North East Indian woody elements with special reference to timber trees. Panjab, Botany, 1963-67. Mehra, Pran Nath, Professor and Head of the Department.

Chromosome number, morphology and meiotic behaviour of about 150 species of woody elements with particular reference to timber trees of the families Lythraceae and Lauraceae have been determined. The incidence of polyploidy and its role in tree improvement has been brought out. B-chromosomes have been reported for the first time in several woody species. Morphological variation within a few species has been discussed. An ecological account, with special reference to floristics of certain areas in Darjeeling Hills and Assam has also been given.

583.44

284.181 Bhat, R. N. Cytotaxonomic studies in some angiosperms. Delhi, Botany, 1964-67. Tandon, S. L., Reader and Maheshwari, J. K., Reader.

583

285.182 Bhattacharyya, Radium. Studies on the histochemistry of Mast cells. Calcutta, Physiology, 1962-67. Sen, P. B., Professor (Retd.).

583.97

286.183 Das, Debika. Taxonomical studies of Indian Anonaceae. Calcutta, Botanical Survey of India, Calcutta, 1964-67. Mukerjee, S. K., Keeper, Botanical Survey of India, Calcutta.

A critical study of the specimens of all species and varieties of Anonaceae in India and their nomenclature has been undertaken. Key to genera and species giving the description and distribution of every species citing localities as noted on preserved specimens will also be prepared.

583.115

287.184 Deb, Arati. Anatomy and cytogenetics of certain dicotyledons. Calcutta, Botany, 1963-68. Datta, P. C., Professor, Indian Association for Cultivation of Science, Calcutta.

583

288.185 Deshmukh, Yeshwantrao Shankarrao. Organogeny and embryological studies in some of the Bicarpellatae with observations on palynology and ontogeny of extra floral nectaries in Verbenaceae. Baroda, Botany, 1958-66. Chavan, A. R., Professor and Head of the Department.

Detailed investigations have been done on floral organogeny, ontogeny of extra floral nectaries, pollen morphology and embryology of Clerodendron aculeatum Linn., C. squamatum Retz., Gmelina arborea Roxb., G. asiatica Linn., G. hystrix Schult., Holmskioldia sanguinea Vahl and Petrea volubilies Linn. The evolutionary tendencies of the nectaries have been discussed, and comparative embryology of the family has been studied.

583.88

289.186 Dhanamjaya Moorthy, V. Cytotaxonomical and cytophysiological studies in the Bananas—Musa—of South India. Annamalai, Botany, 1965-68. Rangaswami Ayyangar, K., Professor and Head of the Department.

A complete survey of all the cultivated and wild bananas has been made. The chromosome numbers of different varieties of bananas are being determined and confirmed. Intervarietal and interspecific crosses will be attempted. The influence of chemical factors on their morphology, histology and cytology will also be investigated.

583.899

290.187 Doreswamy, R. Morphogenetic studies of some insectivorous angiosperms.. Delhi, Botany, 1964-67. Mohan Ram, H Y., Reader.

583

291.188 Gill, Bhagat Singh. Cytomorphological studies in the North-West Himalayan woody species, with special reference to species of timber importance. Panjab, Botany, 1962-67. Mehra, Pran Nath, Professor and Head of the Department.

Chromosome number, chromosome morphology and meiotic behaviour of about 140 woody species, with special reference to the species of timber importance i.e. families Combrelaceae and Julandaceae have been studied. Detailed cytological investigation has revealed the existence of translocation, bridges, laggards, polyads, B-chromosomes and intraspecific polyploid cytotypes in many tree species. Morphological variabilities have been observed in the species which are unstable cytologically or have cytotypes. The role of this cytological data for the improvement of forest species will also be discussed.

583.4

292.189 Jacob, Raju. Studies in phloem anatomy of dicotyledons. Patel, Botany, 1963-66. Shah, J. J., Reader and Head of the Department.

The phloem anatomy of petioles of evergreen, deciduous and herbaceous plants is being investigated with special reference to the developmental aspects of the phloem, and structure and structural changes in phloem at different ages of the petiole, i.e. till abcission or ageing of the leaves.

583

293.190 Janardhanan, K. P. Flora of Bhimashankar and surrounding areas of Khed Taluka, District Poona, Maharashtra State. Poona, Botanical Survey of India, Calcutta, 1960-66. Santapau, H., Director, Botanical Survey of India, Calcutta.

About 832 species of angiosperms have been described, of which a few are new to the already known flora of the Bombay Presidency. This will throw light on the vegetation of the northern parts of Western Ghats and help in the revision of Cook's 'Flora of the Presidency of Bombay', and ultimately in the preparation of 'The flora of Maharashtra State'.

(1) Bull. Bot. Surv. India. 5 ; 1963 : p. 363-374; and (2) Poona Agrl. Coll. Mag. 55 ; 1965 : p. 38-47.

583

294.191 Jigjinni, Shankar Gurasida. Study of circadian rhythms in Portulaca grandiflora. Shivaji, Botany, 1965-67. Karve, A.D., Lecturer.

The leaf movements of Portulaca grandiflora have been studied. They are endogenously controlled but can be affected by such agents, as photoperiod and thermoperiod. The study of the phase shift pattern has shown that the two oscillator model is applicable to these movements. The photoperiodic entrainment of this rhythm is mediated by chlorophyll. This study reveals some fundamental information about pattern recognition by plants.

(1) Circadian rhythm in Portulaca. (with A.D. Karve). Z. furpflan. 53 (2) ; 1965 : p. 169-172 ; An entrained oscillator as a model of a two-oscillator (2) system. (with A. D. Karve), ibid. 53(4) ; 1965 : p.363-365 ; (3) Leaf movements of portulaca under different photoperiods. (with A. D. Karve). ibid. 54(4) ; 1966: p. 270-274 ; and (4) Pigment system involved in the photoperiodic entrainment of circadian leaf movements. (with A. D. Karve). Naturwiss. 53 (7) ; 1966 : p. 181.

583.15

295.192 Khanna, Ramesh Chander. Morphological and cytogenetical studies in capegooseberry. I.A.R.I., Delhi, Horticulture, 1965-70. Ranjit Singh, Horticulturist.

Observations on the morphological and cytogenetical characters of the species of Physalis—capegooseberry-will be recorded. Interspecific crosses will be attempted and their morphology and cytology studied. In case of different crosses, reciprocal grafting will be attempted to overcome certain physical and biological barriers.

583.38

296.193 Mathur, Meenakshi. Cytogenetic studies on some angiosperms. Delhi, Botany, 1965-67. Tandon, S. L., Reader.

583

297.194 Mohana Rao, P. R. Garrya, Nyssa, Thelygonum. Delhi, Botany, 1962-67. Kapil, R. N., Reader.

583

298.195 Nafday, Usha R. Studies in the Tubiflorae of Nagpur. Nagpur, Govt. College of Science, Nagpur, 1962-67. Mirashi, M. V., Professor and Head of the Department of Botany, Vidarbh Mahavidyalaya, Amravati.

Taxonomic investigations on the order Tubiflorae based on the studies of local plants are in progress.

583.7

299.196 Neelakandan, N. Histochemical study of the vegetative and reproductive phases of some flowering plants. Gujarat, Botany, 1965-69. Shah, C. K., Reader.

Various histochemical methods, like ascorbic acid, RNA, DNA, histomes etc., have been used to locate the chemical constitution of the embryo at different developmental stages.

583

300.197 Pal, Ranjitkumar. Cytologonomic investigation on some monocotyledonous and dicotyledonous members. Calcutta, Botany, 1960-67. Sarma, A. K., Reader.

583

301.198 Pandey, Mukteshwar. Studies on the effect of certain growth substances on Papaver somniferum. Banaras, Agriculture, 1966-67. Choudhri, R. S., Professor and Head of the Department and Kapoor, L. D., Asstt. Director, National Botanic Gardens, Lucknow.

The data regarding the variation in the morphological characters, flowering and development of capsule as affected by the auxin treatments viz. IAA, 2, 4-D and GA applied at various growth stages of Papaver somniferum has been recorded. It is found that auxin treatment is helpful in early germination of seeds, early flowering and increase in the fruit-setting in the poppy crop.

583.12

302.199 Pandey, Sachchida Nand. Mycorhiza in relation to growth and fruiting of Litchi Chinensis. Bhagalpur, Agriculture, 1960-66. Misra, Ayodhya Prasad, Professor of Plant Pathology, B. A. College, Sabour.

Rhizophagous litchi, a new species of fungus, growing in mycorhizal association with the roots of litchi plants is found to have a beneficial role on their nutrients uptake and influence the growth and fruiting of litchi plants. Seasonal variations in the incidence of mycorhiza in different varieties of litchi and differences due to the nature of soil are also being investigated.

583.28

303.200 Peerzada Saeed. Morphology and anatomy of seeds of some members of the family Apocynaceae. Aligarh, Botany, 1965-68. Farooq, M., Reader and Bahadur Singh, National Botanic Gardens, Lucknow.

583.72

304.201 Poulose, K. V. Origin and development of axillary buds in dicotyledons. Patel. Botany, 1964-67. Shah, J. J., Reader and Head of the Department.

The origin and development of the axillary buds in the following dicotyledons are under investigation :

(i) Foeniculum vulgare ; (ii) Clerodendron inerme ; (iii) Clerodendron splendens ; (iv) Amarantus gangeticus ; (v) Coriandrum sativum ; (vi) Santalum album ; (vii) Carica papaya ; and (viii) Memyxylon umbellata.

583

305.202 Rakshit, Samir. Cytogenetical and irradiation studies in jute and allied fibre plants. Calcutta, Botany, 1965-67. Jacob, K. T., Director, Indian Jute Research Institute, Calcutta.

583.19

306.203 Ramchander, Sheela. Floral anatomy and embryology of Pittosporaceae. Osmania, Botany, 1964-68. Narayana, Lanka Lakshmi, Lecturer.

The family Pittosporaceae has not received much attention so far from the point of view of floral anatomy and embryology. The present study has been undertaken to see how far the data from these disciplines would be helpful in deciding the taxonomic position of the family.

583.141

307.204 Rangan, T. Srinivasa. Morphogenetic investigations on the parasitic angiosperms Cassvtha, Cistanche and Striga. Delhi, Botany, 1962-67. Rangaswami, N. S.

583

308.205 Rasheedunnisa. Embryological and morphological investigation of the family Loganiaceae. Osmania, Botany, 1964-68. Gulati, Nirmal, Lecturer.

The embryological and morphological studies on the genus Strychnos covering fourteen species and few species of Buddlea have been undertaken. The work on Strychnos Nux-vomica and Strychnos potattorum has been completed. Comparative studies of Strychnos aculeata, S. splendens, S. dolichothyrsa, S. apetii, S. usambarsis, S. elaeocarpa, S. spinosa, S. nigutana, etc., and Buddlea asiatica are in progress. Artificial culture of pollen grains and seed viability have also been tested.

583.74

309.206 Sahni, Raj Kumari, Azalea. Delhi, Botany, 1962-66. Kapil, R. N., Reader.

583.6

310.207 Sanjeeva Rao, P. Endosperm and embryo culture of Santalum. Delhi, Botany, 1962-66. Rangaswami, N. S.

583.94

311.208 Shah, Veenaben Jashvantlal. Studies on citrus fruit. Baroda, Biochemistry, 1965-67. Ramakrishnan, C. V., Professor.

Studies are being carried out on the biogenesis of ascorbic acid in citrus fruit.

583.24

312.209 Syed Zalliul Hasan. Nutritional requirements of some excised angiospermic embryos. Aligarh, Botany. 1958-66. n. g.

583

313.210 Thulasy, K. S. Studies in the phloem of some Cucurbitaceae and the origin and development of axillary buds in dicotyledons. Patel, Botany, 1965-68. Shah, J. J., Reader and Head of the Department.

The phloem of the following plants is under investigation : (i) Luffa aegyptica ; (ii) Lagenaria vulgrais ; (iii) Cucumis trigonanthus ; (iv) Coccinia indica ; and (v) Momordica charantia. Some of the plants selected for the study of axillary buds are : (i) Symplocos beddomei ; (ii) Callistemon viminalis ; (iii) Ocimum Kiliman-dcharricum ; (iv) Michelia champaka ; and (v) Ipomoea palmata.

583

314.211 Tirlochan Singh. Cytomorphological studies of the West Himalayan woody species with special reference to trees of timber importance. Panjab, Botany, 1963-67. Mehra, Pran Nath, Professor and Head of the Department.

Meiotic studies, and in some cases mitotic also, have been made of 125 species of the families Magnoliaceae, Saxifragaceae, Cupuliferae and Salicaceae. Some of these species have been collected from different localities as these are of cytological or morphological interest. In addition to new reports of chromosome numbers for species and genera, abnormal configurations and other cytological features have been worked out. Different cytotypes have also been detected in a few cases. No less than 40 commercial timbers have been described.

583.114

315.212 Torne, S. G. The cytogenetical studies in some angiosperms. Bombay, Institute of Science. 1964-67. Dnyansagar, V. R., Professor.

Rauvolfio serpentina, 2n=22, has been studied in respect of mitosis regular and meiosis irregular. An increase in the percentage of germination of seeds irradiated with X and Gamma radiation—250 γ — 25,000 γ — has been observed. Induced mutants have been found with crumpled cotyledons and with more root bark, branchings and inflorescences. Induced tetraploids, 2n=44, have shown an increase in the width of corolla, root, size of the fruit, seed and pollen grains. Mitosis regular and meiosis irregular are being studied with mean frequency of quadrivalents 4.8.

583

316.213 Unnikrishnan, K. Origin and development of axillary buds in some dicotyledons. Patel, Botany. 1964-67. Shah, J. J., Reader and Head of the Department.

The origin, development, vascularisation and related problems of axillary buds in woody as well as herbaceous dicotyledons will be studied. Some of the plants selected for investigation are (1) Trigonella Goenum-graecum, (2) Clerodendrum phlomidis, (3) Cuminum ciminum, (4) Menta viridis, (5) Fujenia jambolana, (6) Polyalthia rendulosa, (7) Tectona grandis, and (8) Brassica nigra.

583

Ranales

317.214 Magrey, Muneer Ahmed. Physiologico-ecological studies on genus Ranunculus in Srinagar. Jammu & Kashmir, Botany, 1964-68. Kaul, V., Reader and Head of the Department.

The morphology, germination and phytosociology of the various species of the genus Ranunculus, growing in Srinagar, will be studied.

583.11

318.215 Nataraja, K. Experimental studies in Ranunculaceae. Delhi, Botany, 1964-67. Konar, R. N.

583.11

Rhoeadales

319.216 Agarkar, Diwakar Sakharam. Ecological study of wall-flora of Gwalior. Vikram, Botany, 1963-70. Mall, L. P., Reader and Head of the Department.

583.123

320.217 Ramana, Kanumuri Venkata Rama. Metabolism in relation to soil salinity and alkalinity. Venkateswara, Botany, 1965-67. Das, Vallabhaneni Sita Rama, Reader.

The effect of NaCl for salinity and Na_2Co_3 for alkalinity on the metabolism of radish seedlings is being investigated on the following lines: Changes in the nitrogen fractions, carbohydrate fractions, rate of respiration, changes in the activity of some enzymes, like catalase, peroxidase, succinic dehydrogenase, cytochrome oxidase, and some of the endogenous growth regulators.

583.123

321.218 Shiwalkar, Ajeya Ramchandra. Studies on disruptive selection and two way selection in Brassica campestris var, brown sarson. I. A. R. I., Delhi, Botany, 1965-69. Murty, B. R., Biometrical Geneticist.

The changes in divergence between derived populations obtained after disruptive selection and two way selection in Brassica campestris var. brown sarson, have been compared. The changes in compatibility, and other correlated responses which contribute to productivity and intensive agriculture have also been examined. The changes in fitness as measured by the seed set will also be compared.

583.123

322.219 Talur Swamy Rao. Genetics of self incompatibility in Brassica campestris var. brown sarson. I. A. R. I., Delhi, Botany, 1964-67. Murty, B. R., Biometrical Geneticist.

The genetics of self incompatibility in a diallel set of crosses between diverse parents of Brassica campestris var. brown sarson has been examined by changes in reproductive behaviour in diverse genetic backgrounds. Similar analysis has also been carried out in irraditated populations. The analysis of tetrasomic inheritance of three characters in artificial tetraploids is under investigation.

583.123

Theales

323.220 Bhattacharyya, Asokkumar. Biochemical studies on tea. Calcutta, Biochemistry, 1964-69. Ghosh, J. J., Professor.

583.16

324.221 Deb. Sudhansubhusan. A study of the chemical constituents of tea in relation to the metabolism of the tea plant, tea manufacture and tea quantity. Calcutta, Botany, 1958-67. Bhatia, J. S.

583.16

325.222 Pal, Kalidas. Biochemical studies on tea. Calcutta, Biochemistry, 1964-68. Bhattacharyya, K. C., Professor and Head of the Department of Applied Chemistry.

583.16

Malvales

326.223 Adhikari, Amiyakumar. Cytological and cytotaxonomical investigations in some genera of Malvaceae. Calcutta, Botany, 1960-67. Basu, R. K.

583.17

327.224 Govila, O. P. Methods of overcoming incompatibility, shortage and culture of pollen of cotton species. Aligarh, Botany, 1965-68. Farooq, M., Reader and Swaminathan, M. S., Director, Indian Agricultural Research Institute, New Delhi.

583.17

328.225 Hajra, Radharanjan. Chromosome study as a means of working out the interrelationship between different genera of angiosperms with special reference to the Malvaceae and vitaceae and effects of X-rays on certain horticultural species. Calcutta, Botany, 1961-67. Sharma, Archna, Lecturer.

583.17

329.226 Pundir, Nripender Singh. Experimental embryology of Gossypium arboreum L. and G. hirsutum L. and their reciprocal crosses. Delhi, Botany, 1963-67. Johri, B. M., Professor and Head of the Department.

583.17

330.227 Ramalingeswara Rao, Kandula. Metabolism in the developing seeds of Hibiscus esculentus, L. Venkateswara, Botany, 1963-66. Das, Vallabhaneni Sita Rama, Reader.

The rate of respiration and changes in carbohydrate, nitrogen, phosphorus constituents and in the levels of gibberellins and phenols have been investigated in the developing seed as well as individual parts of Hibiscus esculentus, L. from 4th to 18th day after anthesis. The results have been correlated with the morphological changes that occur during development of embryo.

583.17

331.228 Sharma, Ram Adhar. Influence of the application of some growth regulators—purine and pyrimidine bases of the nucleic acids—on flowering and fruiting of cotton. Gorakhpur, Botany, 1965-68. Mathur, S. M., Lecturer.

583.17

332.229 Siddiqi. J. A. Interspecific transfer of characters in Gossypium and interspecific differentiation studies in Gossypium arboreum. Aligarh, Botany, 1966-69. Swaminathan, M. S., Director, Indian Agricultural Research Institute, Delhi.

583.17

Geraniales

333.230 Digamber Rao. A contribution to the floral anatomy and embryology of Humiriaceae, Linaceae and Erythroxylaceae. Osmania, Botany, 1963-67. Narayana, Lanka Lakshmi, Lecturer.

In the light of the data gathered from the present studies, the relationships of these families with other families of Geraniales have been discussed. The systematic position of certain disputed genera has also been discussed.

583.21

334.231 Krishna Moorthy, Hoskere Nagabhatta. Studies in growth and development of Impatiens balsamina. Panjab, Botany, 1964-67. Nanda, Krishan Kumar, Professor.

The effect of different photoperiods, varying number of short day cycles, intercalated long days and age of the plant on growth and development of Impatiens balsamina have been studied. Anatomical studies of the shoot apex and floral buds have also been done. Work is in progress to study the histochemical changes of the shoot apex and axillary buds associated with floral induction.

Planta. 72 ; 1967 : p. 338-343.

583.21

335.232 Seetharam, Annadana. Cytogenetical and cytotaxonomical studies on some species of the genus Linum. I. A. R. I., Delhi, Botany, 1965-68. Srinivasachar, D., Geneticist.

Crosses have been made amongst 16, 18, 30 and 36 chromosome species and meiosis of the F_1s' studied in order to find out the interrelationship between the wild and cultivated species of Linum and to transfer useful characters from the former to the latter. All the F_1s' are resistant to all the prevailing 7 races of rust. Among the species, only L. perenae is susceptible to all the 7 races.

583.21

Rosales

336.233 Ambalanathan, B. Cytophylogenetical studies in Rosaceae. Annamalai, Botany, 1965-68. Rangaswami Ayyangar. K., Professor and Head of the Department.

It is proposed to determine and/or confirm the mitotic and meiotic chromosome numbers of different species. A series of intergeneric, interspecific and intervarietal crosses among the members of the family Rosaceae will be undertaken. The influence of chemical factors, like colchicine, on the morphology and cytology of the various species will also be studied.

583.3

337.234 Philip, V. J. Embryogenesis and seedling morphology of Lochnera rosea. Madras, Presidency College, Madras, 1961-66. Swamy, B. G. L., Professor of Botany, Presidency College, Madras.

583.3

Leguminosae

338.235 Abubaker, P. K. Cytotaxonomic studies on the Papilionaceae. Kerala, Botany, 1964-67. Ninan, C. A., Reader.

The cytological investigations on twenty species of papilionaceous plants have been completed. Interspecific and intervarietal hybridizations are being tried in Phaseolus and Dolichos.

583.32

339.236 Ashok Kumar. Studies in bark morphology of certain leguminous plants. B. I. T. S., Pilani, Botany, 1965-68. Joshi, Mohan Chandra, Lecturer.

Research in bark morphology of certain leguminous plants has been undertaken to work out the anatomy and study the development and structure of various bark components. The seasonal variations in the bark will also be studied and an identification key for the plants formed on the basis of bark structures. This will be helpful in Phamokognosy.

583.32

340.237 B. P. Singh. Effect of some growth regulating substances on male sterility, seedlessness and growth of some species of Trichosanthes. Gorakhpur, Botany, 1965-69. Mathur, S. N., Lecturer.

Fruits of Trichosanthes are very commonly used as green vegetable in North India, but it has been noticed that many Trichosanthes' fields do not bear any fruits. This is considered to be due to sterility of the male flowers. The effect of some growth hormones on sterility and production of seedless varieties is, therefore, being investigated.

583.32

341.238 Chakravarty, Bharati. Foliar nectaries of the Leguminosae. Delhi, Botany, 1964-67. Maheshwari, J. K., Reader.

583.32

342.239 Chandrasekharan Nair, P. N. Studies on the variability in cowpea. Kerala, Botany, 1962-66. Abraham, A., Professor and Head of the Department.

It is proposed to study the genetic variability in cowpea, especially the inheritance pattern of the different qualitative and quantitative characters and linkage and the crossability of the different species and varieties. Correlation studies on different yield components and the interaction of their characters are in progress.

583.32

343.240 Deshpande, Bhaskar Gopalrao. Embryological studies in some wild and cultivated legumes. Nagpur, Botany, 1963-67. Kajale, L. B., Professor and Head of the Department.

It is proposed to work out the embryology of the following species of Leguminosae : Dolichos lablab, Dolichos biflorus, Lathyrus sativus, Pisum sativum, Lens esculenta, Vigna catjang and Arachis hypogea. These species will also be studied cytologically to establish their genetic relationships and trace their ancestry.

583.32

344.241 Gopinath, P. M. Cytological studies of Pisum. I. I. S., Bangalore, Biochemistry, 1961-67. Subramaniam, M. K., Asstt. Professor.

With improved techniques, it has been confirmed that the normal diploid complement of Pisum sativum possesses fourteen chromosomes. The nucleolus persists till metaphase and instances of lagging chromosomes and micronuclei have been observed in the somatic cells. Peculiar chromosomal groupings in the meristematic and polysomatic cells have been recorded. Behaviour of the nucleolus has also been followed through the various stages of mitosis.

583.32

345.242 H. S. Singh. Physiology of root nodules as affected by purine and pyrimidine bases in some leguminous plants. Gorakhpur, Botany, 1966-69. Mathur, S. N., Lecturer.

The root nodules of the leguminous plants fix atmospheric N_2 and convert it into nitrites, nitrates and NH_3 and utilize it for protein synthesis. The purine and pyrimidine bases of m RNA determine the synthesis of various proteins in the cell. It is, therefore, desired to know what part these bases play in the nitrogen metabolism of the nodules if they are supplied externally.

583.32

346.243 Mallikarjunaswamy, Putchala. Pysiological studies on seeds of some crop plants under storage. Venkateswara, Botany, 1963-67. Madhusudana Rao, Irvanti Professor and Head of the Department.

Methyl bromide fumigation of groundnut—Arachis hypogea L—seeds, with moisture content above 5%, results in poor germination. Respiration, nitrogen fractions, amino acid pattern, fat acidity and catalase activity have been studied in treated seeds during germination. Activity of cytochrome C oxidase and changes in carbohydrates are under study.

583.32

347.244 Mauhi Mahizh, Nesiah. Cytophysiological taxonomy of Leguminoseae with special reference to Phaseoleae. Annamalai, Botany, 1963-67. Rangaswami Ayyangar, K., Professor and Head of the Department.

Taxonomical studies of three species of Phaseolus, namely, Phaseolus radiatus L., Phaseolus mungo L. and Phaseolus trilobus Ait., with reference to their anatomy, cytology and physiology have been carried out in detail. It has been possible to correlate the various physiological processes and meiotic and mitotic behaviour with the differentiation of species in this genus.

583.32

348.245 Mayura Devi, Pasupuleti. Studies on heterostylism in Biophytum sensitivum Dc. Osmania, Botany, 1962-67. Mohammed Hashim, Reader.

Trimorphism and self incompatibility have been reported in Biophytum sensitivum Dc. Experiments on reproductive biology, population dynamics and the inheritance of tristyly have been conducted. An attempt has also been made to understand the phenomenon of the heterostyly and homostyly in this species on the basis of data obtained from a study of its morphology, biometry, cytology and embryology.

(1) Jour. Gen. 59(1) ; 1964; and (2) ibid. 59(3) ; 1966.

583.32

349.246 Raju, P. N. Studies on legume nodulation. Madras, Botany, 1963-67. Sadasivan, T. S., Professor.

The effect of infection with DEMV on the nodulation of Dolichos lablab. is being studied. The study includes changes in dry weight of plants, haemoglobin and bacteroid content of nodules, total soluble and insoluble nitrogen, carbohydrates, nucleic acids and virus contents of plants.

583.32

350.247 Sreeramulu, Nagineni. Physiological studies on dormancy of seeds with particular reference to groundnut. Venkateswara, Botany, 1965-68. Madhusudana Rao, Iruvanti, Professor and Head of the Department.

The seeds of groundnut, bunch type : TMV-2, are nondormant. Catalase activity of the cotyledons and embryo has been studied during germination of TMV-2 seeds. Endogenous auxin levels and RNA are being investigated.

583.32

Cucurbitales

351.248 A. B. Singh. Studies on some virus diseases of papaya. Gorakhpur, Botany, 1963-67. Bhargava, K. S., Professor and Head of the Department.

Host range, physical properties, symptomatology and virus-vector relationship of papaya mosaic virus and papaya leaf reduction virus have been studied. Pathological anatomy of plant infected with papaya leaf reduction virus has been studied. Inhibitory effect of some plant extracts has also been studied. The study on the effectof different levels of N, K, and P is in progress.

Some control methods, like heat therapy and chemotherapy will also be studied.

583.46

352.249 Benny, M. V. Cytogenetical studies on Cucurbitaceae. Kerala, Botany, 1964-68. Ninan, C. A., Reader.

Cytological investigations on 20 species of South Indian cucurbitaceous plants have been completed. Endosperm cytology in some species of the family has been worked out. Intergeneric and interspecific hybridizations are being attempted in selected genera.

583.46

353.250 Bhalla, Prithvi Raj. Extraction and estimation of gibberellin-like compounds in the fruits and seeds of watermelon. Delhi, Botany, 1963-67. Maheshwari, S. C., Reader.

583.46

354.251 Dathan, A. S. Ravindranatha. The structure and development of seeds of Cucurbitaceae and some of its related families. Rajasthan, Botany, 1965-68. Dalbir Singh, Reader.

The structure and development of seeds of Cucurbitaceae and some of its related families, like Passifloraceae, Bixaceae, Datiscaceae, Elatinaceae, Flacourtiaceae and Violaceae will be studied to explain the relationship of the families of Parietales. Studies on the germination of seeds of the Cucurbitaceae and the development and structure of peg in the cucurbitaceous seedlings will also be carried out under controlled physiological conditions to ascertain the nature and function of the peg.

583.46

Umbelliflorae

355.252 Banerjee, R. N. Taxonomical studies of Indian Aralliaceae. Calcutta, Botanical Survey of India, Calcutta, 1965-67. Mukerjee, S. K., Keeper, Botanical Survey of India, Calcutta.

A critical study has been made of the specimens of all species and varieties of Aralliaceae in India. A study of their nomenclature and the preparation of keys to genera and species giving the description and distribution of every species citing localities as noted on preserved specimens is in progress.

583.48

356.253 Vijai Pal Singh. Genetics of Coriander—Coriandrum sativum L.—with particular reference to yield. I. A. R. I., Delhi, Botany, 1964-67. Ramanujam, S., Geneticist.

It is proposed to analyse the genetic architecture of various metric characters, particularly yield and yield components, using different biometrical methods, as also to investigate their inheritance and experimental modification of sex expression.

583.48

Rubiales

357.254 Inamuddin. The life history of Rubiaceae and some other plants. Aligarh, Botany, 1966-69. Farooq, M., Reader.

583.52

358.255 Joshi, Manohar Chikkappa. Embryological and cytological studies in Rubiaceae. Karnatak, Botany, 1962-68. Chennaveeraiah, Masgode Shanthaveeraiah, Professor.

It is a routine type of embryological and cytological work with a bearing on taxonomy. Species of the genera Anotis and Ophiorrhiza have been selected for study.

583.52

359.256 Venkataraman, Rukmani. Growth and flowering of Wolffia microscopia. Delhi, Botany, 1963-66. Maheshwari, S. C., Reader.

583.52

Asterales

360.257 Misra, Sudhakar. A comparative study of the structure and development of the seed and fruit in Compositae. Rajasthan, Botany, 1964-67. Tiagi, Brahmadatta, Head of the Department.

Representative members from the thirteen tribes of the family Compositae are being studied in relation to the structure of flower, its vasculature, histology of the mature seed and fruit, and details of their development to arrive at some cogent points of tribal distinctness and interrelationship.

(1) Jour. Ind. Bot. Soc. 36 ; 1957 : p. 503-512 ; (2) Bot. Mag. 77 ; 1964 : p. 290-296 ; and (3) Aust. Jour. Bot. 13 ; 1965 : p. 1-10.

583.55

361.258 Patil, Raghuveer Madhava. Cytotaxonomic studies in the tribe 'Inulae' of the family Compositae. Karnatak, Botany, 1961-66. Chennaveeraiah, Masgode Shanthaveeraiah, Professor.

Blumea, an important genus of the tribe Inulae, is a characteristic component of the weed flora of fields, open areas and small forests. An intensive collection of not less than 12 species of this genus has been made from South Western India. Cytogenetical investigations of the species collected have revealed that they are not only in a polyploid series but also consist of apogamic complexes, the latter perhaps contributing to their success as weeds. Evolutionary pattern among the genus is being worked out.

583.55

362.259 Remanandan, P. Cytotaxonomic studies in Indian Compositae. Panjab, Botany, 1964-68. Mehra, Pran Nath, Professor and Head of the Department.

In an attempt to record the cytotaxonomical data of the Indian Compositae, 47 species from Eastern Himalayas, 60 from Western Himalayas and 74 from Western Ghats have been worked out with special reference to meiotic breakdown and variation patterns in terms of their repetition and geographical spread. An inquiry into the cytological evolutionary trends in this family is in progress.

583.55

Boraginales

363.260 Banerjee, S. P. Taxonomical studies of Boraginaceae of Eastern India. Calcutta, Botanical Survey of India, Calcutta, 1964-66. Mukerejee, S. K., Keeper, Botanical Survey of India, Calcutta.

A critical study has been made of the specimens of all species and varieties of Boraginaceae in India. A study of their nomenclature and the preparation of keys to genera and species giving the description and distribution of every species citing localities as noted on preserved specimens is in progress.

583.77

364.261 Tasneem Fathima. Floral morphology of certain members of Boraginaceae. Bangalore, Botany, 1964-67. Nagaraj, M., Professor and Head of the Department.

Embryological studies on certain members of Boraginaceae are being made in order to understand the diversity in the development of gametophytes, endosperms and embryo which will help establish the position of certain disputed taxa under the family and justify the position of the family itself.

583.77

Solanales

365.262 Bansal, Hukamchand. Effect of physical and chemical mutagens on the genus Capsicum. Patel, Botany, 1966-68. Swaminathan, M. S., Director, Indian Agricultural Research Institute, Delhi.

Studies are in progress on the effect of physical and chemical mutagens in some of the varieties of the genus Capsicum for the induction of mutations. A detailed and critical analysis of pigmentation and estimation of capsaicin mutants will help probe into the possibilities of obtaining a desired variety.

583.79

366.263 Habib, Abdul Rahiman Fakruddin. Taxonomic and cytogenetic studies in Capsicum. Karnatak, Botany, 1962-66. Chennaveeraiah, Masgode Shanthaveeraiah, Professor.

In all 36 varieties of different species of Capsicum procured from different parts of the world have been subjected to taxonomic and cytogenetic studies. Hybridization work at interspecific and intervarietal levels has been conducted. Both F_1 and F_2 populations have been studied cytologically as also for the inheritance of characters.

583.79

367.264 Kolhe, Ananda Kautik. Studies on the genetics of quantitative characters contributing to yield and on the genetic association between ascorbic acid content and fruit size in tomato. I. A. R. I., Delhi, Botany, 1964-67. H. B. Singh, Head of the Division of Plant Introduction.

Crosses have been effected in possible combinations between 12 varieties of tomato. Hybrid generations F_1 along with parents have been studied for quantitative characters, such as, number of branches, number of fruits, size of fruit, volume of fruit, number of fruit clusters and yield per plant. Ascorbic acid content has also been determined. Back crosses in both ways in some combinations are being made and studied along with F_2 generations for the above characters.

583.79

368.265 Madhavadian, Philomena. Cytogenetic investigations on the Solanaceae. Kerala, Botany, 1962-66. Abraham, A., Professor and Head of the Department.

Detailed cytological studies have been done on 61 species under 16 genera of Solanaceae collected from South India. Twelve different interspecific crosses in the genus Solanum have been attempted and 3 interspecific hybrids obtained. The study of the F_1 has also been completed and the F_2 progeny is under observation.

583.79

369.266 Masilamani, C. Cytotaxonomical, cytophysiological and cytogenetical studies in Solanaceae. Annamalai, Botany, 1966-69. Rangaswami Ayyangar, K., Professor and Head of the Department.

It is proposed to determine and/or confirm the mitotic and meiotic chromosome numbers of different species of Solanaceae. A series of intergeneric, interspecific and intervarietal crosses among the members of this family will be undertaken. The influence of chemical factors, like colchicine, on the morphology and cytology of the various species will also be studied.

583.79

370.267 Mukhopadhyay, Sipra. Saponins and sapogenins of some solanaceous plants. Calcutta, Botany, 1960-67. Maiti, P. C.

583.79

371.268 Narayan, R. K. Jayaprakash. Genetic studies on the genus Nicotiana. I. A. R. I., Delhi, Botany, 1962-67. Murty, B. R., Biometrical Geneticist.

The evolutionary significance of flower reversion in some populations of Nicotiana rustica, its inheritance and association with some metabolic blocks has been examined to elucidate the complex nature of the loci involved. A comparison of radio-sensitivity of the putative parents of N. tabacum and N. rustica has also been made to identify the genomes contributing to the differential radio-sensitivity of the cultivated species under chronic and acute gamma radiation. The cytological basis and the association instabilities of flower reversion are being examined.

583.79

372.269 Sarma, Yemmiganuru Ramalinga. Studies on early blight disease of brinjal. Venkateswara, Botany, 1965-67. Nayudu, Malepati Venkatarama, Reader.

The spores of the pathogen, Alternaria, desiccated for 2 days at room temperature germinate well at low humidity. The same results follow when these are treated at 40 C followed by low temperature. Conditions for infectivity are being worked out and chromatographic procedures for amino acids, organic acids and phenols standardised.

583.79

373.270 Saxena, Titli. Studies on the structure, development and germination of the seeds of Solanaceae. Rajasthan, Botany, 1965-69. Dalbir Singh, Reader.

Lycopersicum esculentum, L. pimpinellifolium, Capsicum frutescens and Physalis ixocarpa have been selected to study the rate of development and structure of seeds and fruits in the family. Several known varieties of L. esculentum and C. frutescens will be investigated in detail. Daily collections will be made of the developing flowers and fruits and usual microtome techniques followed. Germination trials of the seeds will also be carried out to study the effects of factors, such as, time of flowering, maturity of fruit, methods of harvesting at the time of seed collection and storage conditions etc.

583.79

374.271 Sengupta, G. Taxonomical studies on Solanaceae of India. Calcutta, Botanical Survey of India, Calcutta, 1964-68. Mukerjee, S. K., Keeper, Botanical Survey of India, Calcutta.

A critical study has been made of the specimens of all species and varieties of Solanaceae in India. A study of their nomenclature and the preparation of keys to genera and species giving the description and distribution of every species citing localities as noted on preserved specimens are in progress.

583.79

Personales

375.272 Bhalla, Joginder Kaur. Karyomorphological and population studies in certain members of Acanthaceae. Osmania, Botany, 1963-67. Jafar Nizam, Reader.

Fifty five species of Acanthaceae have been collected and new chromosome counts reported for 33 species. Experiments with chemical mutagens have been conducted to study chromosomal aberrations. Irradiation studies using X-rays and gamma rays have been carried out. Seed material has also been exposed to high altitude cosmic radiations. Interesting data has been collected on germination and population studies.

(1) Curr. Sci. 34 (9) : p. 225 ; (2) Sci. & Cul. 31 (10) : p. 531-532 ; and (3) ibid. 32 (3) : p. 142-143.

583.8

376.273 Charyulu, Mudumba Gopala. Study of the anatomy of the family Acanthaceae. Osmania, Botany, 1965-69. Ramayya, N., Lecturer.

The anatomy of about 60 species representing the major subgroups of Acanthaceae is under study. Both the mature structure and development of the following parts are being investigated : stomata, trichomes, cystoliths and pericycle. The general anatomy of the stem, petiole and leaf-blade will also be worked out.

583.8

377.274 Raju, Dasappa. Embryology of Scrophulariaceae. Mysore, Botany, 1964-67. Govindappa, D. A., Reader.

The family Scrophulariaceae has a very interesting type of endosperm development. A large number of investigators have done a considerable work on the structure and behaviour of endosperm haustoria. Recent embryological studies have clearly demonstrated that embryological data are quite valuable in systematics. It is proposed to investigate at least 8 species of

Scrophulariaceae and determine the inter-tribal relationships within the family on embryological basis.

583.8

378.275 *Suryakanta. Pollen morphological studies in Bignoniaceae, Burmanniaceae and Acanthaceae. Osmania, Botany,* 1965-68. Bhoj Raj, Reader.

The three families under investigation show a wide range of pollen grains. The detailed study of these grains will help in the proper taxonomical evaluation.

583.8

379.276 Tiwari, Basant. Physio-ecological studies of Sesamum species. B.I.T.S., Pilani, Botany, 1966-69. Joshi, Mohan Chandra, Lecturer.

Studies on the physio-ecological variations in species of Sesamum Oil, C: N, Ca: Mg, shooting and rooting behaviour and extent of Chl : N in vegetative and reproductive stages are being carried out. The effectiveness of soil moisture stress on these aspects of the plant will also be investigated under both field and pot conditions.

583.8

Labiatae

380.277 Jagannatha Rao, Velichety. Anatomical studies in the family Labiatae. Osmania, Botany, 1966-70. Ramayya, N., Lecturer.

The anatomy of about 50 species representing the major subgroups of Labiatae is under study. Both the mature structure and development of the following parts are being investigated viz., stomata, trichomes, nectaries and pericycle. The general anatomy of the stem, petiole and leaf-blade will also be worked out.

583.89

381.278 Lachhman Singh. Cytotaxonomic studies of N. W. Indian Labiatae along with cytomorphology of Taraxacum officinale complex. Panjab, Botany, 1963-67. Mehra, Pran Nath, Professor and Head of the Department.

For cytotaxonomic studies of Labiatae, collections have been made from Kashmir to Kumaon Hills between an altitudinal range of 1,000 - 14,000 ft. About 100 species have been worked out cytologically. Specimens have been identified and compared with type specimens at Forest Research Institute, Dehra Dun. Palynological studies of these species have also been carried out and about 40 collections of Taraxacum officinale studied cytomorphologically. 6 cytotypes have been discovered from Western Himalayas.

583.89

382.279 Sobti, Soom Nath. Biosystematics of Indian Menthas with special emphasis on menthol content. Jammu & Kashmir, Botany, 1962-68. Janki Amal, E. K., Scientist, Regional Research Laboratory, Jammu.

Several species of Menthas have been collected and their experimental growth studied. The menthol content has been studied in relation to varying ecology and cytogenetical status. The breeding of new and economically important forms will also be undertaken.

583.89

Euphorbiales

383.280 Datta, Nityananda. Investigation on several genera of the Euphorbiaceae with special reference to their cytology and other aspects. Calcutta, Botanical Survey of India, Calcutta, 1963-67. Patil, Ramakant Pandurang.

The different genera of the Euphorbiaceae are being investigated with special reference to the determination of chromosome number and polyploidy, chromosomal behaviour during meiosis, and karyotype analysis based on the position of primary and secondary constructions and size differences of somatic chromosomes.

583.95

384.281 Patil, Basanagouda Channabasanagouda. Cytotaxonomic study of Crotalaria. Karnatak, Botany, 1964-67. Chennaveeraiah, Masgode Shanthaveeraiah, Professor.

About 50 species of Crotalaria have been collected from different parts of South India. All these have been grown in the experimental garden and subjected to cytological study.

583.95

385.282 Satyanarayana Reddy, Pulimamidi. Cytological and genetical studies in certain species of Crotalaria. Osmania, Botany, 1964-68. Mohammed Hashim, Reader.

A comparative study of karyotypes has been undertaken in certain species of Crotalaria. Interspecific crosses have also been attempted. Meiotic studies in parental species and hybrids are being carried out. Studies of the inheritance of corolla colour in Crotalaria are in progress.

583.95

Urticales

386.283 Das, Bhusanchandra. Studies on breeding and cytogenetical aspects of mulberry with special reference to its improvements. Calcutta, Botany, 1965-67. Krishnaswami, S.

583.962

387.284 Harjinder Kaur. Embryology of some Ficus species with special reference to the relationship with fig insects. Delhi, Botany, 1963-66. Chopra, R. N., Reader.

583.962

Angiospermae—*Monocotyledons*

388.285 Korlahalli, Babu Chintamanrao. Taxonomic studies on monocotyledons in and around Calcutta. Karnatak, Botanical Survey of India, Calcutta, 1963-66. Santapau, H., Director, Botanical Survey of India, Calcutta.

675 field numbers representing about 200 taxa have been collected. Fresh plants have been identified with the help of floras and monographs, and their identity has been confirmed in Calcutta. Detailed descriptions are being written. Every attempt has been made to bring identity and nomenclature up-to-date. 15 new plant records have been established so far.

584

389.286 Mishra, Moti Pd. Cytology of certain angiospermous species with special reference to taxonomy and ecology of the family Hydracharitanlu. Magadh, Botany, 1962-67. n.g.

584.73

390.287 Ramarethinam, S. Floral morphology of some angiospermic families. *D.Sc.* Annamalai, Botany, 1964-67. Rangaswami Ayyangar, K., Professor and Head of the Department.

The floral anatomy of some monocot families, namely, Pontederiaceae, Commelinaceae, Xyridaceae, Juncaceae, Liliaceae, Amaryllidaceae, Palmae and Araceae will be studied with special reference to the placentation. The interrelationship between different species of each genera will be studied on the basis of anatomy. The exact morphology of the placentae and their phylogenetic trends will also be discussed.

584

391.288 Tilak, Vinayak Dattatraya. Studies in the floral anatomy of the Scitamineae. Marathwada, Botany, 1964-66. Pai, Raghawendra Mukund, Reader.

The vascular anatomy has been applied as a tool in the morphological considerations of the scitaminean flower and in the discussions of phylogenetic aspects in the order.

Jour. Bio. Sci. 8 ; 1965 : p. 1-3.

584.21

Orchidales

392.289 Jorapur, Shyamsunder Madhwarao. Cytotaxonomical studies in the tribe 'Ophrydeae' of Orchidaceae. Karnatak, Botany, 1964-67. Chennaveeraiah, Masgode Shanthaveeraiah, Professor.

The species of Habenaria, Peristylis, Platanthera and Satyrum of Ophrydeae occurring in South India have been collected. Nearly 20 species involving about 1,300 plants have been selected. All these have been grown in the experimental garden and subjected to cytotaxonomical investigations. Although polyploidy is rare, it has now been found in the species Habenaria diphyllum. Aneuploidy also seems to play a major role in the evolution of the species.

584.15

393.290 Kataki, Sarat Kumar. The Orchidaceae of United Khasi and Jaintia Hills District of Assam : A contribution towards a detailed knowledge of orchid flora of Assam. Gauhati, Botanical Survey of India, Calcutta, 1965-68. Sathyanarayana Rao, Aragula, Regional Botanist, Botanical Survey of India, Calcutta.

The study is based on the earlier collections in the herbaria of Eastern Circle, Botanical Survey of India and Central National Herbarium, Calcutta and repeated collections and live plants in the National Orchidarium, Shillong. It is proposed to write an illustrated taxonomic monograph including description with keys to the species of the area and cultural aspects.

584.15

Liliales

394.291 Ramakrishna Sastry, Addala. Lilliaceae in Assam and neighbouring areas : A contribution towards a detailed knowledge of liliaceous plants of the region. Gauhati, Botanical Survey of India, Calcutta, 1966-68. Sathyanarayana Rao, Aragula, Regional Botanist, Botanical Survey of India, Calcutta.

The study is based on the earlier collections in the herbaria of Eastern Circle, Botanical Survey of India and Central National Herbarium, Calcutta. This will be further augmented by fresh live collections in different areas. It is proposed to bring out an illustrated taxonomic monograph with keys and description to species of the region together with other scientific information on cytology, economic botany etc.

584.32

395.292 Virendra Kumar. Cytological studies on the trans-Himalayan genera of the tribe Polygonatae of Liliaceae. Delhi, *Botany, 1964-67. Swaminathan, M. S., Director, Indian* Agricultural Research Institute, Delhi.

584.32

Arales

396.293 Gupta, Subhashni. Physiology of the Lemnacea. Delhi, Botany, 1964-67. Maheshwari, S. C., Reader.

584.64

397.294 Panikkar, T. K. Balakrishna. Studies in the embryology of some members of Araceae. Kerala, Botany, 1964-67. George, K., Head of the Department—Calicut Centre.

Studies in the embryology of seven species of Araceae have been undertaken. The study deals with the development of micro and megasporangia, gametophytes, endosperm, embryo and seed in all these species. The mode of origin of the endosperm has been studied in greater detail. The embryological relationship of Araceae to its allied families will also be investigated.

Curr. Sci. 34 (21) ; 1965 : p. 614-615.

584·64

398.295 Seth, Prakash Nath. Physiology of flowering in Lemnaceae. Delhi, Botany, 1964-67. Maheshwari, S. C., Reader.

584.64

Cyperales

399.296 Donde, Vinodini P. Studies in the Cyperaceae of Nagpur. Nagpur, Govt. College of Science, Nagpur, 1963-68. Mirashi, M. V., Professor and Head of the Department of Botany, Vidarbha Mahavidyalaya, Amravati.

A monographic treatment of the local members of the Cyperaceae, their taxonomy, anatomy, seedling etc., is envisaged.

Bull. Bot. Soc. Coll. Sci. Nagpur. 3(2) ; 1962 : p. 42-58.

584.84

400.297 Nijalingappa, Bennur Here Matada. Cytological and embryological studies in Cyperaceae. Bangalore, Botany, 1965-68. Nagaraj, M., Professor and Head of the Department.

The cytological and embryological studies on some available taxa of Cyperaceae are being made to correlate the intertribal relationships and to justify the systematic position of certain disputed taxa.

584.84

401.298 Sanyal, Bhupendranath. Cytotaxonomic study with special reference to members of Cyperaceae and response of chromosomes to different treatments. Calcutta, Botany, 1961-67. Sharma, Archana, Lecturer.

584.84

402.299 **Verma, Dinesh Mohan.** Cyperaceae of Assam and neighbouring areas : A contribution towards a detailed knowledge of sedges of Assam. Gauhati, Botanical Survey of India, Calcutta, 1966-68. Sathyanarayana Rao, Aragula, Regional Botanist, Botanical Survey of India, Calcutta.

The study is being pursued with the previous collections in the herbarium of Eastern Circle, Botanical Survey of India and Central National Herbarium, Calcutta, together with further repeated collections and study of live plants. It is proposed to write an illustrated monograph on Cyperaceae of Assam and neighbouring areas including their description and keys to their identification.

584.84

Graminales

403.300 Abraham, P. G. Physiology of seed germination in relation to growth and development of plants. Gujarat, Botany, 1964-68. Shah, C. K., Reader.

The exogenous application of ascorbic acid and sucrose enhances the biosynthesis of ascorbic acid in seeds of wheat. Pre-sowing treatment with ascorbic acid and sucrose affects post inductive stages of plant growth giving an increase of 7.0-7.33% of yield. Ascorbic acid enhances the rate of respiration.

584.93

404.301 Agrawal, Ratan Lal. Studies on combining ability in crosses between composite maize varieties in the F_1 and F_2 generations. I. A. R. I., Delhi, Botany, 1965-69. Dhawan, N. L., Project Coordinator-Maize.

Crosses between maize composites will be evaluated for general and specific combining ability in the F_1 and F_2 generations and the genotype × environment interaction estimated.

584.92

405.302 Baghel, Suraj Singh. Genetics of prolific eared character in maize and its effect on yield and other characters. I. A. R. I., Delhi, Botany, 1965-68. Dhawan, N. L., Project Coordinator-Maize.

The inheritance of the prolific eared character will be worked out, and the impact of the prolific eared character on yield and other characters studied.

584.92

406.303 **Basu, Pritisadhan.** Physico-chemical studies on straining with special reference to gram straining. Calcutta, Botany, 1964-67. Biswas, B. B., Lecturer.

584.9

407.304 *Bhag Singh. Studies on the components of genetic variance for yield and other characters in two maize composites and their cross.* I. A. R. I., Delhi, Botany, 1964-68. Dhawan, N. L., Project Coordinator-Maize.

The components of genetic variance, such as, additive genetic and dominance, and their interaction with environment will be worked out in two composites and their cross.

584.92

408.305 Bhargava, Brahma Datta. Effect of water stress on some anatomical and physiological aspects of bajra. B.I.T.S., Pilani, Botany, 1965-67. Pillai, S. K., Professor and Head of the Department.

The 3 varieties of bajra, of different maturity days, grown in field in the month of July, 1965 are under investigation. The effect of soil moisture stress has been measured by the R. T. and D. P. D.—internal deficits in plant—and the values have been correlated with the developmental aspects like growth and some metabolic activities. The anatomical studies have also been conducted to see these effects. The experiment is being repeated in pots.

584.92

409.306 Bhat, Bal Krishen. Morphological and cytogenetical studies in inter-racial crosses of maize. I. A. R. I., Delhi, Botany, 1963-67. Dhawan, N. L., Project Coordinator-Maize.

The study relates to the role of nucleus and cytoplasm in the manifestation of heterosis and other quantitative traits in maize.

584.92

410.307 Bhattacharya, R. K. Investigations on the salt resistance in rice. Aligarh, Botany, 1966-67. Afridi, M. M. R. K., Reader and Ramiah, K., Vice-Chancellor, Orissa University of Agriculture & Technology, Bhuvaneshwar.

584.93

411.308 Bhuvaneswari, Venkatraman. Cytotaxonomy of Graminae. Annamalai, Botany, 1966-69. Rangaswami Ayyangar, K., Professor and Head of the Department.

584.9

412.309 Chandra Bhan Singh. Genetic manipulation of quality in rice. I. A. R. I., Delhi, Botany, 1966-69. Swaminathan, M. S., Director.

Several tropical japonicas are doing well in India but have sticky grains. The alteration of quality characters through induced mutations and japonica x indica crosses will be studied.

584.93

413.310 Choudhary, V. B. A study of grassland ecosystem. Banaras, Botany, 1965-67. Misra, R., Professor and Head of the Department.

An attempt has been made to estimate the annual net production of Dichanthium grasslands by studying the seasonal changes in the standing crop both above ground and underground. The vertical distribution of the component species in the peak growth period has also been studied. The determination of the energy content of the grassland ecosystem is in progress.

584.9

414.311 Das, Prakash Kanti. A cytogenetical and cytochemical study in wheat with particular reference to adaptability and yield. I. A. R. I., Delhi, Botany, 1964-68. Jain, H. K., Head of the Division of Genetics.

A number of wheat varieties, which are known to differ in their adaptability, are being tested for their developmental stability under varying cultural conditions. The characters, whose stability is being investigated, are of morphological and cytological nature. A cytochemical study of DNA and RNA synthesis is also being attempted in the root tip cells of these different varieties.

584.93

415.312 Datta, Sujitkumar. The effects of Nandkion cell wall constituents and their relation with auxin content in rice plant. Calcutta, Botany, 1963-67. Sirkar, S. M., Sir R. B. Ghose Professor and Head of the Department.

584.93

416.313 Dave, Indravadan Chhelshanker. Study of respiratory and photosynthetic activities in relation to ascorbic acid metabolism in wheat. Gujarat, Botany, 1963-68. Chinoy, J. J., Professor and Head of the Department.

The effect of pre-sowing and hardening treatment with ascorbic acid has been studied on the growth and development characters as well as the yield. Changes in ascorbic acid metabolism in relation to other metabolites have also been studied in vegetative and reproductive shoot species, anthers, carpels and developing grains. Exogenous application of ascorbic acid and sucrose has enhanced the respiratory activities in germinating seedlings, carpels and developing grains. An increment upto 33.0% in the yield has been recorded due to pre-treatment with ascorbic acid.

584.93

417.314 Goswami, Karunamoy. Genetic analysis of adaptation in bread wheat, Triticum aestivum L. I. A. R. I., Delhi, Botany, 1963-67. Murty, B. R., Biometrical Geneticist.

The mechanisms of adaptations in Indian wheats have been found to be due to diverse pathways and mostly due to spikelet number, flowering time, grain weight, synchrony of development and early vigour. The analysis of their hybrids has revealed complementary genetic system for heterosis which is related to the magnitude of the divergence, nature of gene action and the magnitude and direction of environmental effects in partial diallel crosses.

584.93

418.315 Gulati, Subhash Chandra. Variability in synchronization and its association with yield characters in hordeum. Patel, Botany, 1966-68. Murty, B. R., Biometrical Geneticist, Indian Agricultural Research Institute, Delhi.

Yield components have been studied for assessing yield potential in crop plants. The impact of variability in synchronization in plant characters in hordeum on yield will be investigated. This study may constitute a new approach to assess the yield of tiller-bearing crops.

584. 3

419.316 Hemalatha, M. S. The role of introgression in the evolution of Saccharum barberi and Saccharum sinense. Madras, Sugarcane Breeding Institute, Coimbatore, 1966-69. Thuljaram Rao, J., Director, Sugarcane Breeding Institute, Coimbatore.

A comprehensive evaluation will be done of the putative parents, S. officinarum and S. spontaneum and the progeny species, S. barberi and S. sinense in respect of morphological, anatomical, biochemical, agronomical, pathological, cytological and biometrical aspects. The material consists of ten types of the parents each and 80 varieties of the progeny. A year's data has been collected for 12 quantitative characters and analysed statistically. Epidermal peels of leaf have been prepared and studied. The morphological—contrasting—characters have been described for all the varieties. Chromosome number has also been determined for 3 varieties.

584.92

420.317 Jalaja, Nelanchi, Chodaparmbil. Studies in the radiosensitivity of Saccharum species. Madras, Sugarcane Breeding Institute, Coimbatore, 1966-69. Jagathesan, D., Cytogeneticist, Sugarcane Breeding Institute, Coimbatore.

The setts of Saccharum species will be treated with different dosages of X-rays and γ-rays. The effect of the radiations on germination, survival, growth, morphological characters, mutation rate and spectrum, changes in pollen fertility, meiosis and mitosis will be studied. LD-50 dosages for setts and pollen germination will be determined. Stimulatory effect of these radiations and relationships between polyploid and radiosensitivity of S. spontaneum will be studied. Mutants and parents will also be crossed to study the genetics of induced mutants.

584.92

421.318 Jayan, P. K. Ecology of Cenchrus liliaris linn lamplex. Gujarat, Botany, 1966-68. Pandeya, S. C., Reader.

The Cenchrus liliaris linn lamplex of the family Graminae shows great morphological variations in its populations. Perhaps some 90 ecotypes exist in India alone. An attempt is being made to differentiate the ecotypes on the basis of morphological—by Anderson's diagrams, ecological—habitat factors, and cytological—morphology and number of chromosomes, studies. The established ecotypes will be investigated as to the performance in various environmental conditions. This would be of great help in forage production. The role of environment in the mode of reproduction and formation of ecotypes will also be studied.

584.9

422.319 Jha, Upendra Narayan. Study of pond ecosystem. Banaras, Botany, 1966-68. Misra, R., Professor and Head of the Department.

The standing biomass—macrophytes and macroconsumers—has been periodically recorded with the help of a new sampler. The method is being standardised for separating phytoplankters and zooplankters. Light intensity, temperature and other environmental factors along with organic productivity have been assessed. A general picture of energy flow is to be comprehended.

584.9

423.320 John, Devasia. A comparative study of salt and drought resistance in some cereals. Gujarat, Botany, 1963-67. Chinoy, J. J., Professor and Head of the Department.

A number of Indian and exotic varieties of barley have been collected and used for the field experiments conducted during the crop seasons of 1963-64, 1964-65, 1965-66 and 1966-67. The effect of salt, the effect of drought and a combined effect of salt and drought are under study by using the beneficial effects of pre-sowing hardening treatment of seeds.

584.9

424. 321 Joshi, Madhav Ganesh. Subspecific differentiation of tetraploid Triticums. I. A. R. I., Delhi, Genetics, 1964-68. Swaminathan, M. S., Director.

The role of systematic mutations in the differentiation of tetraploid Triticum species has been studied. Some of these loci are being subjected to fine structure analysis.

584.93

425.322 Kanmani, Bharthur Narayana Iyengar. Cytogenetical studies in tetraploid wheats. Karnatak, Botany, 1964-67. Chennaveeraiah, Masgode, Shanthaveeraiah, Professor.

Different species of Triticum involving 90 collections have been selected for hybridization work and to induce haploidy in them. Several hybrids between tetraploid x tetraploid and Hexaploid x tetraploid have been obtained and subjected to cytogenetical analysis. The aim is to find out the intergeneric relationship among Triticinae.

584.93

426.323 Kundu, Kalyan Kumar. The lodging behaviour in relation to carbohydrate metabolism, thickening matter and anatomical similarities of the rice plant. Calcutta, Botany, 1962-67. Sirkar, S. M., Sir R. B. Ghose, Professor and Head of the Department.

584.93

427.324 Manibhushan Rao, K. Studies on the blast disease of rice. Madras, Botany, 1963-67. Sadasivan, T. S., Professor.

Induced-mutation studies on pathogenic fungi have led to many detailed investigations, especially on the role of nutrition in the host-parasite relationship. The mutations with Piricularia oryzae have been carried out. Standardisation of conidial suspension, effective and lethal dosage of the ultraviolet irradiation, screening and isolation of the biochemical mutants has been done. Their pathogenic potentialities on rice and other collateral hosts and their nutritional demands will also be studied.

584.93

428.325 Mathur, Brijendra Narain. Studies on the cereal-root eelworm with special reference to Molya disease of wheat and barley. Rajasthan, Botany, 1966-68. Arya, Harish Chandra, Reader.

The life history of the nematode, Heterodera avenae, is being studied in detail with special reference to host-parasite relationship, factors responsible for disease development, and the differences, if any, in the behaviour of different populations with regard to their pathogenicity.

584.93

429.326 Mehdi, Vimal. Investigation on the seeds of important Indian cereals with regard to their optimum conditions for germination. Aligarh, Botany, 1965-68. Reayat

Khan, Reader and Swaminathan, M. S., Director, Indian Agricultural Research Institute, Delhi.

584.9

430.327 Nair, M. Kunhambu. Cytotaxonomical studies in the genus Saccharum and related genera. Madras, Sugarcane Breeding Institute, Coimbatore, 1963-67. Thuljaram Rao, J., Director, Sugarcane Breeding Institute, Coimbatore.

The relationship between the species S. officinarum and S. spontaneum will be assessed on the basis of a critical analysis of cytology and taxonomy. The characters under study are the functioning of reduced and unreduced gametes and homology of the chromosomes.

584.92

431.328 Narasimhan, Ramaswamy. Genetics of rooting response in Saccharum. Madras, Sugarcane Breeding Institute, Coimbatore, 1964-67. Independently.

The investigation deals with the genetic factors controlling rooting in Saccharum. The species differences have been considered to understand the evolutionary trends in the genus. Efforts are also being made to locate the mechanism of the genetic action.

584.92

432.329 Nashine, Chandrakishore Mulchandrao. A study of the stress physiology in wheat : Effect of water stress. Nagpur, College of Agriculture, Nagpur, 1966-69. Lall, S. B., Lecturer, College of Agriculture, Nagpur.

Artificial water stress has been created in pots at different ages of six varieties of wheat. Physiological studies, such as, photosynthesis, respiration, transpiration and stomatal mechanism have been made. Some of the morphological ratios have also been calculated. Osmotic aspect of cell in two of the varieties is under study.

584.93

433.330 Oke, Jagannath Ganesh. Studies in forage grasses of major importance in Maharashtra State. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1959-67. Deodikar, G. B., Professor of Genetics & Economic Botany, Maharashtra Association for the Cultivation of Science, Poona.

The object of the research is to study in detail some of the important pasture grasses and their associations from ecological, cytotaxonomical, karyological and botanical points of view, as also their response to fertilizer application, frequency of clippings, and relative performance in respect of yield and chemical components.

584.9

434.331 Pandey, Anuj Kumar. Production ecology of grassland. Banaras, Botany, 1966-68. Misra, R., Professor and Head of the Department.

The biomass production of individual grass species has been measured by weighing dry matter of roots and shoots of individual species. The performance of the species, litter production and decomposition in different grass fields will be studied. The flow of energy and cycling of minerals within the grassland ecosystem will also be evaluated.

584.9

435.332 Pandya, Rohit B. Physiology of seed germination in relation to growth and development of plants. Gujarat, Botany, 1964-68. Shah, C. K., Reader.

The exogenous application of ascorbic acid and sucrose enhances the biosynthesis of ascorbic acid as well as other germinative processes in wheat seeds. Their pre-sowing treatment affects the post inductive stages of plant growth and development resulting in early flowering, late senescence and a higher grain yield ranging from 7.0 to 33%, even under field conditions.

584.93

436.333 Phool, Pritpal Singh. Inheritance of grain characters in Pennisetum typhoides (S & H). Punjab Agrl., Plant Breeding, 1964-67. Gill, B. S., Geneticist.

The collection of data on grain colour, size and hardness has been completed from the parental and various segregating generations of a cross and a six-diallel set. The statistical analysis and protein content studies are in progress.

584.92

437.334 Pillay, P. N. Chandrasekhara. Studies on Vetiveria zizanioides (L.) Nash. with special reference to analyses of geographical complexes and genetic architecture of quantitative characters in Indian vetiver. I. A. R. I., Delhi, Botany, 1962-67. Ramanujam, S., Geneticist.

The study includes the assessment of genetic divergence between populations, especially of North and South Indian provenance, determination of the system of reproduction and analysis of the genetic architecture of quantitative characters, including root yield, and essential oil content for formulating a rational breeding programme for vetiver improvement.

584.9

438.335 Rama Devi, Kambainaliur Nagarajarao. Cytogenetical studies in Erianthus species. Madras, Sugarcane Breeding Institute, Coimbatore, 1966-69. Jagathesan, D., Cytogeneticist, Sugarcane Breeding Institute, Coimbatore.

The karyotype analysis and the study of meiosis in all the chromosome types of Erianthus sp. will be taken up. Interspecific crosses in Erianthus and intergeneric crosses with allied genera will be made and the hybrids analysed. The back crosses and study of progenies will be attempted. The role of introgression of Erianthus sp. will be studied. An attempt will also be made to analyse the genomes of one or two species of Erianthus.

584.92

439.336 Rama Manohar Prasad, M. V. Induction of mutations in tetraploid species of Triticum. I. A. R. I., Delhi, Botany, 1965-68. Swaminathan, M.S., Director.

Micro, macro and systematic mutations will be studied in several tetraploid Triticum species treated with a wide range of physical and chemical mutagens.

584.93

440.337 Ram Deo Singh. Genetic analysis of yield and other quantitative characters in sweet maize germplasm complex. I.A.R.I., Delhi, Botany, 1965-68. Dhawan, N. L., Project Coordinator-Maize.

It is proposed to study the components of genetic variance for yield and other traits in complex maize populations.

584.92

441.338 Rangarao, Veerapanani. Genetic analysis of wide adaptation in Triticum aestivum. I.A.R.I., Delhi, Botany, 1965-68. Murty, B.R., Biometrical Geneticist.

The cytological and biochemical basis of adaptation in wheat. T. aestivum, is being examined in a fractional diallel analysis of combining ability and generation means. The cytological basis of homeostasis has shown changes in combining ability for chiasma frequency. The biochemical analysis will be confined to sulf. hydryl containing amino acids and any other constituents, if possible.

584.93

442.339 Ray, Parimal Chandra. Organic acid metabolism in relation to photosynthesis of rice plant. Calcutta, Botany, 1964-67. Sirkar, S. M., Sir R. B. Ghose Professor and Head of the Department.

584.93

443.340 Samiullah. Mineral nutrition studies on cereals. Aligarh, Botany, 1966-69. Afridi, M. M. R. K., Reader.

584.9

444.341 Satapathy, Lakshmidhar. Study on sod shell nucleus. Calcutta, Botany, 1964-68. Banerjee, N. K.

584.9

445.342 Sathyavathi, Goppenhalli Puttanna. Cytogenetical studies in hexaploid wheats. Karnatak, Botany, 1964-67. Chennaveeraiah, Masgode Shanthaveeraiah, Professor.

Seven species involving 60 collections have been taken up for hybridization work and to induce haploidy in them. Several hybrids between hexaploid x hexaploid and tetraploid x hexaploid have been obtained and subjected to cytogenetical analysis to decipher the genome constitution of the hexaploid wheats.

584.93

446.343 Saxena, Om Prakash. Physiology of seed germination in relation to growth and development of plants. Gujarat, Botany, 1964-68. Shah, C.K., Reader.

The exogenous application of ascorbic and sucrose enhances the biosynthesis of ascorbic acid in the seeds of wheat. Pre-sowing treatment with ascorbic acid and sucrose affects post-inductive stages of plant growth by changing the course of AA metabolism. These pretreatments bring about an early ear-emergence and flowering. Pre-sowing treatment with AA beneficially affects grain yield under field conditions, and the increment over control ranges 7·0 to 33%.

584.93

447.344 Sharma, Krishna Kant. Morphological and experimental studies on the hydrophytic grasses commonly found in Rajasthan. Rajasthan, Botany, 1965-67. Tiagi, Brahmadatta, Head of the Department.

The species of Paspalum, Paspalidium, Echinochloa, Hemarthrea, Coix, Pseudoraphis and other hydrophytic grasses are being studied with special reference to the anatomy of spike, seed, and vegetative parts including nodal and seedling anatomy. The physiology of seed germination of four varieties of Oryza sativa will also be studied in relation to various organic and inorganic compounds, temperature, light etc.

584.9

448.345 Sharma, Rajendra Kumar. Ecology of germination of seeds and seedling establishment of grass species. Banaras, Botany, 1965-67. Misra, R., Professor and Head of the Department.

An attempt has been made to study the ecology of seed germination of some grass species, notably Dichanthium annulatum (Forssk.) stapf. and Bothriochloa pertusa. The dormancy, germination inhibitor, effect of light, heat, moisture, plant associates and other environmental factors in relation to seed germination and seedling establishment have also been studied.

584.9

449.346 Siddiq, Ebrahimali Abubacker. Mutation studies in Oryza. I.A.R.I., Delhi, Botany, 1964-67. Swaminathan, M. S., Director.

The frequency and spectrum of mutations induced in varieties of sub-species indica, japonica and javanica of Oryza sativa have been studied by a wide range of physical and chemical mutagens. The results reveal that the sub-species japonica and indica differ only in a few loci which are readily mutable.

584.93

450.347 Sreenivasan, Thuppanarath Velandy. Cytogenetical studies in Saccharum and related genera. Madras, Sugarcane Breeding Institute, Coimbatore, 1966-69. Jagathesan, D., Cytogeneticist, Sugarcane Breeding Institute, Coimbatore.

A study of karyotype in different chromosome types of Saccharum spontaneum is in progress. Interspecific crosses between these will be made and a study of meiosis in the parents as well as hybrids taken up. The karyotype of S. spontaneum will be compared to all the species of Saccharum. The role of introgression within the Saccharum spontaneum complex will also be studied.

584.92

451.348 Srivastva, Girish Chand. Biochemical changes induced by application of growth regulating substances in wheat. I.A.R.I., Delhi, Botany, 1965-68. Sirohi, G. S., Plant Physiologist.

The biochemical changes induced by gibberellic acid, IAA and other growth regulating substances on the rates of amino acid synthesis are being investigated. The transaminase and dehydrogenase activity *in relation to amino acid* synthesis in wheat plant is also being investigated.

584.93

452.349 Surendra Bahadur Singh. Introduction of brachytic gene into normal inbreds and some complexes in maize. I.A.R.I., Delhi, Botany, 1964-68. Sprague, Ernest W., Specialist, Rockefeller Foundation.

The effect of the brachytic character in different genetic backgrounds of inbred lines and composites will be studied with regard to yield and other agronomic traits.

584.92

453.350 Thiagarajan, S. Studies on Pyricularia with reference to host parasite. Madras, Botany, 1965-68. Suryanarayanan, S., Lecturer.

Preliminary experiments have shown that ten cultivated species of Graminae, whose susceptibility to Pyricularia oryzae has been doubtful, are susceptible to the fungus to varying degrees when they had been grown with a low nyctotemperature of 20° C. The effect of toxins from Pyricularia oryzae on the germination of seeds of cultivated species has also been studied.

584.9

454.351 Tripathi, Bal Kishor. The genetic studies on the prolific eared character in maize. I.A.R.I., Delhi, Botany, 1964-67. Sprague, Ernest W., Specialist, Rockefeller Foundation.

The effect of the prolific eared character in different genetic backgrounds will be evaluated for its influence on yield and other agronomic traits.

584.92

455.352 Utkhede, R. S. Genetic study of homeostasis in wheat. I.A.R.I., Delhi, Botany, 1963-67. Jain, H. K., Head of the Division of Genetics.

The study has been undertaken to investigate the interaction between the different levels of polyploidy and temperature conditioned environments in different wheat species. The effect of different temperatures on chromosomes is being studied in several varieties of different species of wheat. The study will clarify the role of genome addition in wheat in extending the cultivation of this plant over wider areas.

584.93

456.353 Venkataraman, Malaiyur Ramakrishnan. Cytogenetical and taxonomical studies in Saccharum robustum. Madras, Sugarcane Breeding Institute, Coimbatore, 1962-67. Thuljaram Rao, J., Director, Sugarcane Breeding Institute, Coimbatore.

It is a cytotaxonomic study of the 42 clones of Saccharum robustum available at the Sugarcane Breeding Institute. It will include (a) vegetative and floral morphology; (b) stem and leaf anatomy; (c) cytological studies which include a study of meiotic abnormalities as also that of karyotype with respect to the mitotic chromosomes from root tip squashes; and (d) genetical and agronomical studies.

Int. Soc. Sug. Tech. Sug. Bre. Newsletter. 17 (12) : p. 19.

584.92

457.354 Viswanatha Reddy, M. Some aspects of footrot of rice. Madras, Botany, 1965-68. Kalyanasundaram, R., Reader.

The methods for detection—both qualitative and quantitative—of fusaric acid and gibberellic acid in rice plants have been standardized. The study of inoculum levels of the pathogen of F. moniliforme on the intensity of disease in rice plants is in progress.

584.93

458.355 Ziauddin Ahmad. Genetic analysis of quality in Pennisetum typhoides. I.A.R.I., Delhi, Botany, 1966-69. Murty, B. R., Biometrical Geneticist.

The inheritance of some of the essential amino acids and other nutrients will be investigated by a diallel and partial diallel analysis. The partial diallel cross will also yield information on the optimum fraction for diallel analysis of combining ability. The distribution of alleles in different geographical areas will also be studied.

584.92

Gymnospermae

459.356 Oberoi, Yash Pal. Morphology, anatomy and embryology of Podocarpus gracilor with a review of recent work on conifers. Delhi, Botany, 1960-67. n.g.

585.2

Pteridophyta

460.357 Gupta, Kusum Lata. Morphology and anatomy of some living and fossil vascular plants. Allahabad, Botany, 1964-68. Pant, Divya Darshan, Head of the Department.

The morphological and anatomical investigations of fossil compressions collected from the Lower Gondwanas of India are being carried out to find their stable taxonomic characteristics. Since living plants furnish the real clue to the structure of fossils, these studies will be supplemented by first hand observations on comparable living plants.

Jour. Linn. Soc. (Bot.). 59; Feb' 66 : p. 265-277.

587

Filicineae

461.358 Bhavanandan, K. V. Cytomorphological investigations on the South Indian aspidiaceous ferns. Kerala, Botany, 1961-66. Abraham, A., Professor and Head of the Department.

Investigations on the cytology and morphology of 35 species of South Indian aspidiaceous ferns have been carried out. The developmental pattern of the gametophyte and the nature of variation in the leaves of the juvenile sporophytes have also been studied.

587.31

462.359 Dhir, Kewal Krishan. Pteridophytic flora of N. W. Himalayas. Panjab, Botany, 1964-68. Mehra, Pran Nath, Professor and Head of the Department.

Extensive surveys of fern flora between an altitudinal range of 300m-4500m from Dalhousie to Kumaon Hills have been made. In all about 250 species have been collected and ecological notes taken with reference to their distribution pattern. Some of them have also been photographed in their natural habitat. Nearly 150 species have been identified and compared with the type specimens of P. U. Herbarium. About 20 species are new to these hills.

587.31

463.360 Gupta, Asha Kumari. A study of the gametophytic generation of the Himalayan leptosporangiate ferns. Panjab, Botany, 1965-68. Mehra, Pran Nath, Professor and Head of the Department.

A study of gametophytic generation of 55 species of Himalayan leptosporangiate ferns has been undertaken. Cultures have been raised in ½ Knop's solution and sterilised soil. Early stages have been drawn from the Knop's solution and the late stages from the soil cultures. Microtome sections have been prepared to study the sex organs and microphotographs taken wherever, essential. An attempt to hybridize some probable compatible species is also being made.

587.31

464.361 Khullar, Surinder Pal. Cytotaxonomy of W. Himalyan ferns. Panjab, Botany, 1964-67. Mehra, Pran Nath, Professor and Head of the Department.

The ferns of Kashmir, Kulu Valley and Kumaon Hills have been studied upto an altitude of 14,500 ft. From these areas, more than 75 taxa have been studied for their chromosome number and other interesting cytological features. Most of these are fresh records for the area, while some are totally new records. Almost all the ferns collected have been identified. The phyletic significance of these observations is being considered.

587.31

465.362 Srivastava, Ashvani Kumar. Morphogenetic investigations upon the onset of fertile phase in some ferns. Gorakhpur, Botany, 1964-67. Sharma, Dwijendra Narain, Lecturer.

A morphogenetic investigation of the sporogenous meristems of some ferns is being carried out with special reference to their inception and the organogenetic activities. Critical analysis of the onset of fertile phase in ferns is being done to investigate various factors involved in the process. The investigations are likely to furnish valuable information about the physiology of reproduction in ferns.

587.31

466.363 Tripathi, Sharad Mani. Morphogenetic investigations of spore producing members of some ferns of India and Nepal. Gorakhpur, Botany, 1964-67. Sharma, Dwijendra Narain, Lecturer.

Detailed morphogenetic investigations of the inception, development and structure of the sporocarp of Marsilea sps. is being carried out to illustrate the real morphological nature. The spore producing members of some ferns of India and Nepal are being subjected to cytological and in vitro culture studies to induce meiosis therein, which will facilitate hybridization in ferns.

Occurrence of Helminthostachys zeylanica hook in Lakshmipur Forest (Gorakhpur). Ind. For. 92 (4); 1966 : p. 275-277.

587.31

Bryophyta

467.364 Abdur Rashid. Indian bryophytes. Delhi, Botany, 1964-67. Chopra, R. N., Reader.

588

468.365 Jasbir Kaur. Life history and culture work on some of the Western Himalayan hepatics. Panjab, Botany, 1962-67. Mehra, Pran Nath, Professor and Head of the Department.

Three strictly indigenous species, Cryptomitrium himalayanse Kash., Athal pinguis Falc. and A. pusilla Kash. of the order Marchantiales have been selected for detailed study. The morphological, embryological, cytological and much of the cultural work has been accomplished in which the phyletic position of these plants and the light they throw on the evolutionary pattern in the Marchantiales has been emphasised.

588.3

Thallophyta

469.366 Mantri, Jainarayan Murlidhar. Taxonomy and physiology of Phytophthora species. Marathwada, Botany, 1964-66. Deshpande, Keshav Balwant, Professor and Head of the Department.

Four new species of Phytophthora have been isolated and identified on the basis of their morphology, cultural characters and pathogenicity. A study of the various nutritional and physical factors, effect on growth sporulation, morphogenesis and carbon metabolism has been undertaken. The production of pectolytic enzymes and their properties will also be studied.

589

Eumycophyta

470.367 Ali, Md. Masrus. Investigations on the plasmodic growth and taxonomy of the phycomycetes. Calcutta, Botany, 1965-67. Kar, A. K.

589.25

471.368 Baijal, Usha. Studies on Mucorales with particular reference to the genus Mucor. *D.Sc.* Allahabad, Botany, 1966-69. Mehrotra, B. S., Reader.

589.28

472.369 Basu, Rekha. Studies on the antifungal activity of fungifirm soils of West Bengal. Calcutta, Biochemistry, 1963-67. Majumdar, S. K., Lecturer.

589.2

473.370 Bhagwat Prasad Singh. Cultural and pathological studies of some fungi causing diseases. Allahabad, Botany, 1965-68. Tandon, Ram Narain, Professor (Retd.).

Various fungi causing diseases of fruits, vegetables and other leaf-spots have been isolated. Cultural studies on the best suited medium, optimum pH, carbon, nitrogen, sulphur and phosphorus requirements, and chromatographic studies on utilization of different sugars and amino acids by these fungi will be carried out. In pathological studies, pathogenicity tests, host range, effectiveness of different fungicides in inhibiting the growth and reproduction, spore germination, temperature effect and thermal death point will also be studied.

589.2

474.371 Chapalgaonker, Usha. Taxonomy, ecology and physiology of fungi associated with soils of Marathwada. Marathwada. Botany, 1966-68. Deshpande, Keshav Balwant, Professor and Head of the Department.

It is proposed to study the total mycoflora of the soils of this region, the ecological relationship between various fungi in mixed cultures, the production of antibiotics, and the physiology of selected fungal species.

589.2

475.372 Garg, Arun Kumar. Studies in keratinophilic fungi. Rajasthan, Botany, 1966-68. Tiagi, Brahmadatta, Head of the Department.

Many of the keratinophilic fungi cause ringworm infections in men and animals. It is proposed to study their etiology and incidence of the fungi causing dermatomycoses, soil screening, and physiology and nutritional requirements.

(1)Mycopathologia (Den Haag). 29 ; 1966 : p. 189-192 ; and (2) Sabouraudia. 4 ; 1966 : p. 259-264.

589.2

476.373 Gopinathan Nair. Studies on entomogenus fungi. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1964-68. Kamat, M.N., Professor of Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

Taxonomy, morphology, cultural behaviour, physiology, parasitism, insect host range—field storage and household, host-parasite relationship of entomogenus fungi are under study. The persistence and over summerising, preservation of cultures, isolation and active principle of control will also be studied.

589.2

477.374 Gorakh Nath Singh. A comparative study of rhizosphere and rhizoplane mycoflora of oil seed plants. Banaras, Botany, 1965-67 Roy, R. Y., Reader.

The isolation and culturing of fungi from rhizosphere and rhizoplane of Brassica campestris L., and Linum usitatissimum L., have been done. Root exudates have been chromatographically analysed. The effect of cultural filtrate of a few fungi on the germination of seeds and the effect of different fungi on the growth of roots of plants have also been studied by growing them in agar tubes. During the course of investigation, a new Verticillium sp., has also been found.

589.2

478.375 Gupta, Prem Chand. A comparative study of the rhizosphere mycoflora of Solanaceae and Labiatae. Banaras, Botany, 1965-67. Roy, R. Y., Reader.

The research deals with the study of rhizosphere and rhizoplane mycoflora of three plants of medicinal importance viz. Withania somnifera Dun, Datura alba Nees and Ocimum sanctum Linn., both in the field as well as in pots. The effect of hormones and trace elements on rhizosphere and rhizoplane mycoflora of these plants has been studied. The effect of fungal exudates on plant growth is also being studied.

589.2

479.376 Hegde, Ramachandra Kuppayya. Studies on the bean anthracnose organism, Colletotichum lindemuthianum (Sacc. and Magn.) Bri and Cav. in India. I. A. R. I., Delhi, Mycology & Plant Pathology, 1964-67. Munjal, R. L., Systematic Mycologist.

13 monosporous cultures from samples collected from different parts of the country have yielded nine races on the basis of host reaction. It has been shown that cultural studies, chemical analysis and serology are good tools for the study of physiologic specialization in this pathogen.

589.2

480.377 Kamal. Ecological and cultural studies of some fungi from forest soils of Eastern Uttar Pradesh. Gorakhpur, Botany, 1965-67. Bhargava, K. S., Professor and Head of the Department.

Fungi have been isolated from the soils of teak forest having stands of different ages and their succession has been studied in relation to N. P. K. organic carbon contents, pH and moisture. Several fungi, hitherto unreported, have been described.

589.2

481.378 Kapoor, Inder Jeet. Cultural and pathological studies of certain fungi causing rot of fruits in storages. Allahabad, Botany, 1965-68. Tandon, Ram Narain, Professor (Retd.).

Various fungi causing diseases of fruits, vegetables and other leaf spots have been isolated. Physiological and pathological studies of three organisms viz., Phoma sp., Helminthosporium sp. and Curvularia tuberculata will be carried out.

589.2

482.379 Khara, Harmandar Singh. Studies on the Indian Hydnaceae. Panjab, Botany, 1965-69. Thind, Kartar Singh, Professor.

70 species of Hydnaceae have been studied in detail. Out of these, about 8 species are new to science while about 65 are new records for India.

589.2

483.380 Mathur, S. B. Studies on adaptation of fungi to fungicides. Aligarh, Botany, 1965-68. Khan, Abrar M., Reader and Grewal, J. S., Indian Agricultural Research Institute, Delhi.

589.2

484.381 Mishra, Krishna Bihari. Rhizosphere mycoflora of fibre yielding plants. Banaras, Botany, 1965-67. Roy, R. Y., Reader.

The research is confined to three fibre yielding plants viz., Corchorus capsularis, C. olitorius and Hibiscus canabinus L.Fungi from rhizosphere, non-rhizosphere and rhizoplane have been isolated and the analysis of root extracts and exudates undertaken by paper chromatography. The effect of foliar spray of some hormones and root extracts on rhizosphere mycoflora is being studied.

589.2

485.382 Mohd. Mobin. Studies on fungi and nematodes associated with certain crop plants. Aligarh, Botany, 1966-69. Khan, Abrar M., Reader.

589.2

486.383 Narain Singh. Studies on soil fungi. Allahabad, Botany, 1965-68. Mehrotra, B. S., Reader.

Some species of Mucorales have been studied and few of these are found to be new.

589.2

487.384 Narasimham, Arigala Venkata Lakshmi. Studies on the ecology of soil fungi with special reference to the rhizosphere microorganisms of Eucalyptus sp. and paddy. Osmania. Botany, 1964-67. Rama Rao, Pannuri, Lecturer.

Qualitative and quantitative estimations have been made of bacteria, actinomycetes and fungi from five soils planted with Eucalyptus sp., Anacerdium occidentale, Cymbopogan sp., and paddy and their relationship with physico-chemical factors of soils considered. The rhizosphere microflora of Eucalyptus sp. and paddy has also been studied. The effect of environmental factors on the rhizosphere microflora of paddy is being investigated.

589.2

488.385 Natarajan, K. Studies on the rhizosphere microflora of some crop plants. Madras, Botany, 1965-68. Subramanian, C. V., Professor.

The rhizosphere microflora of Pennisetum plant is being studied using different types of soil. Some of the fungi isolated from the rhizosphere have been identified. The root exudates of hybrid Pennisetum HB-1 and the two parents of the hybrid are being analysed for their amino acid, organic acid and sugar contents.

589.2

489.386 *Padmavathy, Kaliki. Ecology of soil fungi with particular reference to soil fungistasis. Osmania, Botany, 1965-68.* Rama Rao, Pannuri, Lecturer.

The seasonal variations and distribution of microflora from soils planted with Ricinus communis, Brassica oleracea and various members of Gramineae are being studied. The seasonal variation of the soil fungistasis on 3 pathogenic and 3 saprophytic fungi is also being studied simultaneously. The rhizosphere microflora of castor and cabbage has been recorded.

589.2

490.387 Purohit, Deo Kishan. Cultural and morphological studies on some Indian species of Pestalotia. Jodhpur, Botany, 1966-69. Bilgrami, K. S., Reader.

Different species of Pestalotia have been isolated from about sixty new hosts. The organisms have been purified and single spore cultures made. Most of the fungi are richly sporulating. A comparative study of the conidial morphology has been undertaken. Studies dealing with the physiological behaviour of these isolates are in progress.

589.2

491.388 Rajeshwar Prasad. Studies on Aspergilli and Mucorales of India. Allahabad, Botany, 1966-69. Mehrotra, B.S., Reader.

Several hundred samples of soil and excrements have been examined. Isolation of fungi—Mucorales and Aspergilli—has revealed a number of interesting forms, never reported from India before.

(1) Branching of conidiophores in Aspergilli. Mycopath. et Myc. App. 22 ; 1964 : p. 269-270 ; (2) Cocmansia cevloncnsis linder from India. ibid. 29 ; 1966 : p. 207-210 ; and (3) Syncephalis depressa from India. Mycologia. 56 ; 1964 : p. 905-908.

589.2

492.389 Ramachandra Reddy, K. Studies on coelomycetes. Madras, Botany, 1965-68. Subramanian, C. V., Professor.

Discosia sp. obtained from various world herbaria and the Indian collections are being examined. Spore formation and developmental stages of some of the coelomycetes have been studied and specimens collected from various places examined.

589.2

493.390 Ram Hari Singh. Cultural and pathological studies of certain fungi. Allahabad, Botany, 1964-67. Tandon, Ram Narain, Professor (Retd.).

Physiological as well as pathological studies will be carried out on certain species of Aspergillus causing fruit rot disease. The nutritional requirements of the pathogens will be studied and attempts made to determine suitable measures for the control of different diseases. The amount of injury under natural conditions will be estimated and the host range determined. The mode of entry of the parasite will be studied. Various fungicides will also be evaluated in the laboratory and the suitable ones used for control purposes.

589.2

494.391 Rattan, Sarjit Singh. Studies on the Indian Thelephoraceae. Panjab, Botany, 1966-70. Thind, Kartar Singh, Professor.

75 species of Thelephoraceae have been studied in detail. Out of these, 5 are new to science while 35 are new records for India. The cultural characters of 15 species have also been studied.

589.2

495.392 Rawla, Kuldip Kaur. Trace elements studies on the nutrition of pathogenic fungi. Panjab, Botany, 1966-70. Thind, Kartar Singh, Professor.

Six pathogenic fungi have been isolated from economically important host plants. Laboratory conditions are being defined for studies on trace elements nutrition of these pathogens.

589.2

496.393 Saini, Satnam Singh. Studies on the trace elements nutrition of some important pathogenic fungi. Panjab, Botany, 1962-67. Thind, Kartar Singh, Professor.

Seventeen trace elements have been tested to find out the trace elements requirements of 13 important pathogenic fungi isolated from different hosts. Refined methods have been devised for successful execution of such work. Fe, Zn and Mn are found to be essential for all ; Cu essential for 9 ; Mo for 6 ; and Ca for 5. Optimum as well as toxic doses of the essential elements for various pathogens have also been discovered.

589.2

497.394 Shanthi, B. Physiology of spore germination in fungi. Madras, Botany, 1962-67. Subramanian, D., Reader.

The factors affecting the germination and respiration of microconidia of Fusarium moniliforme have been studied with special reference to carbon and N_2 requirement for germination. The enzymic pattern during germination will also be worked out.

589.2

498.395 Sivasithamparam, K. Rhizosphere microfloras of diseased plants. Madras, Botany, 1965-68. Sulochana, C. B., Lecturer.

The rhizosphere study of certain plants, like Crotolaria juncea L. is being done, both when they are healthy, and also under infection by virus diseases, at various levels of infection. Similar studies of plants under infection by rusts and also soil borne fungal pathogens will be done. Root exudate study of the above plants will also be undertaken.

589.2

499.396 Srivastava, Mahendra Pratap. Cultural and pathological study of some fungi causing post harvest diseases of some fruits. Allahabad, Botany, 1962-66. Tandon, Ram Narain, Professor (Retd.).

A number of fungi associated with fruit rots have been collected. Detailed cultural and pathological studies have been carried out on four isolates of Botryodiplodia theobromae.

(1) Influence of hydrogenion concentrations on the utilization of sodium nitrite by Diplodia typhine sacc. and Botryodiplodia theobromae pat. Curr. Sci. 32 : p. 35-36 ; (2) Myrothecium rot of tomato. ibid. 32 : p. 425-427 ; (3) Fruit rot of Emblica officinalis Gaertn. caused by Pestalotia cruenta Syd. in India. ibid. 33 : p. 86-87 ; (4) A new species of Sordaria. ibid. 34 : p. 354-355 ; (5) Effect of Botryodiplodia infection on the vitamin C content of mango fruit. ibid. 35 : p. 419; (6) Studies on fungal diseases of some tropical fruits: A list of fungi isolated from fruits and fruit trees. Phytopath. Z. 50 (3) : p. 250-261 ; (7) Studies on fungal diseases of some tropical fruits: Post infection changes in the sugar contents of some fruits. ibid. 50(3) : p. 283-288 ; (8) Post harvest diseases of some fruits and vegetables. Proc. NAS. 34B : p. 339-342; (9) Studies on fungal diseases of some tropical fruits : Some unrecorded fungi. ibid. 34th Annual Session, Sec. B : p. 58-59 ; (10) Studies on fungal diseases of some tropical fruits : Some post harvest diseases of mango—Mangifera indica L. ibid. 35B : p. 69-75; (11) Studies on fungal diseases of some tropical fruits : Effect of temperature on the decay of mango, banana and guava caused by some important pathogens. ibid. 35B : p. 293-298 ; (12) Vitamin C content of guava fruits after fungal infection. Naturwiss. 52 : p. 478; (13) Free amino acid spectrum of healthy and infected 'moshambi' fruit. ibid. 53(19) : p. 508-509 ; and (14) Post harvest diseases of tomato in India. Mycopath. et Myc. App. 29 : p. 254-264.

589.2

500 397 Srivastava, Srikrishna Nand Lal. Studies on soil fungi. Allahabad, Botany, 1963-67. Mehrotra, B. S., Reader.

Many species of soil fungi have been isolated and studied. Six of them have so far been reported as new species, and sixteen as new reports from India. The capacity of various isolates of fungi to produce fat and enzyme amylase has been tested and some interesting results have been obtained.

589.2

501.398 Srivastava, S. S. Studies on some soil and leaf litter fungi of Gorakhpur. Gorakhpur, Botany, 1963-66. Bhargava, K.S., Professor and Head of the Department.

Soil fungal flora of a Eugenia heyneana forest and an adjoining grassland has been studied in relation to ecological factors, like temperature, moisture, water holding capacity, pH and organic carbon content of the soil, using different isolation techniques. The leaf litter of Eugenia has been investigated for its fungal population. The physiological studies on Phialomyces macrosporus have also been done.

589.2

502.399 Sudhir Chandra. Studies on some fungi causing leaf spot diseases. *D.Sc.* Allahabad, Botany, 1961-67. Tandon, Ram Narain, Professor (Retd.).

Various fungi causing leaf spot diseases in the city of Allahabad and adjacent regions have been collected. Identification and morphological studies of various pathogens responsible for the diseases have been made. Physiological and pathological studies on some isolates of Colletorrichum gloeosporioides, especially on the role of pectic enzymes in the pathogenicity, are being carried out.

(1) Three fungi new to India. Curr. Sci. : 33(14) : p. 440-441 ; (2) Chaetomium succineum Ames: A new record to India. ibid. 33 (17) : p. 532-533 ; (3) Two new leaf-spot fungi. ibid. 34 (19): p. 565-566 ; (4) Three new follicolous fungi. ibid. 34 (8) ; 1965 : p. 257-260; (5) Two new species of Phyllostica from Allahabad. Mycopath. et Myc. App. 23 (4) ; 1964 : p. 252-255; *(6) A new species of Aphaeronema from India.* Naturwiss. 51(18) ; 1964 : p.342-343 ; and (7) Follicolous fungi from Allahabad. Proc. NAS. Annual Number ; 1964 : p. 43-46.

589.2

503.400 Sundaram, B. M. Fungal flora of rice field soils. Madras, Botany, 1963-67. Sadasivan, T. S., Professor.

The research deals with the isolation of fungi from the rice field soils of two places around Madras and study of their ecological succession. The utility of various isolation techniques will also be evaluated.

589.2

504.401 Thakur Ji. Studies on some aquatic fungi of Varanasi. Banaras, Agriculture, 1965-66. Ram Dayal, Lecturer.

It is proposed to study the ecology, taxonomy, physiology, and cytology of some aquatic fungi. Their occurrence and periodicity will be investigated and an attempt made to establish new genera and species. Under physiology, carbon, nitrogen, phosphorus, sulphur and vitamin requirements will be studied. Under cytology, studies of cytoplasmic structures, like nucleus and mitochondria, will be made.

(1) Proc. NAS. 35B ; 1965 : p. 309-319 ; and (2) Hydrobiologia. 27 ; 1966 : p. 548-58.

589.26

505.402 Udit Narain. Studies on some parasitic fungi of plants. Allahabad, Botany, 1966-69. Mehrotra, B. S., Reader.

A number of parasitic fungi of plants have been collected from Allahabad and neighbouring areas. Some of these are new reports from the locality and few even from India.

589.2

506.403 Umabala, Kotamraju. Studies on the nutritional requirements and physiology of parasitism of Phytophthora colacasiae and Leptosphaerulina sp. occurring on Colacasia. Osmania, Botany, 1960-69. Rama Rao, Pannuri, Lecturer.

The Phytophthora colacasiae causing leaf spot of Colacasia has been isolated. Another fungus Leptosphaerulina sp., associated with phytophthora leaf spot has also been isolated and these two fungi have been tried for their growth on various natural and synthetic media.

589.2

Basidiomycetes

507.404 Ghosh, Pranati. Investigation on certain aspects of the biology of some wood destroying polyporaceae. Calcutta, Botany, 1964-67. Banerjee, S. N., Reader.

589.222

508.405 Khanna, Asha. Studies on the teliospore morphology of some smut fungi. I.A.R.I., Delhi, Mycology & Plant Pathology, 1964-68. Payak, M. M., Plant Pathologist.

The morphological characters of teliospores in Ustilaginales have great significance in taxonomy and other fields. Reliance has mainly been placed on optical microscopic studies. Investigations have been initiated on the ultrastructure of teliospores of smut fungi affecting cereal crops with electron microscope. Both ultrathin sectioning and replica techniques are being employed.

589.227

509.406 Raghunath, T. Studies on Indian smut fungi. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1965-68. Kamat, M. N., Professor of Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

It is proposed to study the cytology, physiology, pathologic histology and life cycle of Tolyposporium christensenii, Georgefisheria revea, Nevossia horrida and Pericladium sp. Cultural studies of these species will also be carried out.

589.227

510.407 Ram Narayan Singh. Biochemistry and taxonomy of higher Basidiomycetes. Banaras, Agriculture, 1966-67. Tewari, V. P., Lecturer.

The basis of the vivid colours produced by the Agaricales is the presence of specific pigments in the sporophores. Pholiota sp. has been chromatographically analysed with the help of acetone, ethanol, water, and acid and alkali solvents. Preliminary observations have revealed the predominance of a bright scarlet pigment. It has a high Rf value and can be isolated from pileus or stipe.

589.22

511.408 Richard, Babu Rajendren. Cytology, evolution, and host-parasite relation in some of the Indian rust, and cytology and physiology of Murimasidio spora. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1964-67. Kamat, M. N., Professor of Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

It is proposed to study the cytology, nuclear life cycle and the host-pathogen relation of Hemilia vastatrix; cytology of Scopllopsis puniculata; cytology, physiology and artificial cultivation of Muribasidiospora indica; evolution of rust fungi through their pathogenic habit by colorisation; and the morphology of Haustoria. 30 species comprising 17 genera have been worked out in this regard.

589.225

512.409 Safdar Husain, S. Studies on sugarcane smut caused by Ustilago soltamines syl. Aligarh, Botany, 1965-68. Khan, Abrar M., Reader.

589.227

513.410 Sathe, Arun Vinayak. Studies in some Indian rusts with special reference to life cycles and sexual behaviour. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1961-67. Kamat, M. N., Professor of

Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

Taxonomic studies in rusts of Maharashtra have been undertaken. Life cycle studies have been made in some rust fungi. It is also proposed to study the development, cytology and sexual reproduction in some selected rust fungi.

589.225

514.411 Tauseef Ahmad, S. Studies in the Brown rust of oats caused by Puccinia Gernata CDA Var Avenue, Praser and Led. Aligarh, Botany, 1966-69. Khan, Abrar M., Reader and Raychowdhry, S. P., Head of the Division of Mycology & Plant Pathology, Indian Agricultural Research Institute, Delhi.

589.225

Ascomycetes

515.412 Bahekar, V. S. Studies in some saprophytic ascomycetes and deuteromycetes of Marathwada. Marathwada, Botany, 1963-67. Tilak, Sham Trimbak, Lecturer.

589.23

516.413 Chiplonkar, Alaka Moreshwar. Some Indian ascomycetes with special reference to conidial states. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1965-69. Kamat, M. N., Professor of Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

The development, sexual reproduction, cytology and chromosome studies have been carried out in two ascomycetes genera—Elsinoe and Taphrina. Cultural studies in some specified species with conidial states and taxonomic studies in the ascomycetes of Maharashtra will also be done.

589.23

517.414 Harnek Singh. Studies on the Indian inoperculate discomycetes. Panjab, Botany, 1965-68. Thind, Kartar Singh, Professor.

145 species have been studied in detail & 20 species are new to science while about 100 species are new records for India. Ecological data has also been gathered on all the collections made.

(1) Jour. Ind. Bot. Soc. 43 ; 1964 : p.529-542 ; and (2) ibid. 44 ; 1965 : p.122-132.

589.23

518.415 Jagtap, Ahilya Pandurangrao. Studies in the entomogenous fungus Metarrhizium onisopliae (Metsch) Sorok, affecting Pyrilla in sugarcane and studies in some Indian ascomycetes. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1956-67. Kamat, M. N., Professor of Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

The physiology and parasitism of the entomogenous fungus Metarrhizium onisopliae (Metsch) Sorok. on the sugarcane leaf hopper, Pyrilla sp. have been studied. A study of the fungus as a measure for biological control of the Pyrilla pest is being done. The cytology and development of the Indian ascomycetes, Erysiphe poonensis Kamat on Goniocaulon glabrum. Cass. and Phyllachora symplocicola, Seshadri on Symplocos beddonei will also be studied.

Studies in the entomogenous fungus Metarrhizium onisopliae (Metsch) Sorok. Curr. Sci. 27 ; Mar' 58 : p.99-100.

589.23

519.416 Jyoti Singh. Studies on some citric acid producing Aspergilli. Allahabad, Botany, 1966-69. Mehrotra, B. S., Reader.

Several isolations of strains and species belonging to Aspergillus niger have been made and their capacity to produce citric acid has been ascertained. Few of them have been found to yield enough acid. A morphological comparison of the isolates has also been undertaken.

589.23

520.417 Kale, Sugriv Baliram. Studies in saprophytic ascomycetes. Marathwada, Botany, 1965-68. Tilak, Sham Trimbak, Lecturer.

Saprophytic ascomycetes, like Calosphaeria have been studied and their taxonomic studies have revealed interesting features.

589.23

521.418 Kumbhojkar, Mohan Shamrao. Comparative cytogenetic and cytotaxonomic studies in osmophilic yeasts. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1965-68. Deodikar, G. B., Professor of Genetics & Economic Botany, Maharashtra Association for the Cultivation of Science, Poona.

The research deals with the isolation of osmophilic yeasts from available sources, their generic and specific identification and cytogenetic studies of the individual types. Comparative cytogenetic and cytotaxonomic studies of the various genera and species, isolated and purified, will also be undertaken.

589.23

522.419 Muthappa, B. N. Studies into some Indian discomycetes. Poona, Maharashtra Association for the Cultivation of

Science, Poona, 1964-67. Kamat, M. N., Professor of Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

It is proposed to study the cytology, sexuality, ascocarp development and chromosome morphology of Lembosina sp. and Hysterium sp. Taxonomy of ascomycetes and fungi imperfecti collected from Coorg is under study. Life cycle studies in a species of Hysterium will also be carried out.

589.23

523.420 Patwardhan, Purushottam Gangadhar. Studies on the powdery mildews, Erysiphaceae of Maharashtra. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1960-66. Kamat, M. N., Professor of Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

Detailed taxonomic studies of Erysiphaceae have been undertaken. The morphology, sexual reproduction, development of ascocarp, ascus, nuclear behaviour and chromosome morphology of Phyllactinia gmelinae, P. yarwoodii and Salmonomyces kamatii are being studied. The physiology of these species will also be studied. Observations have also been planned on the hyperparasite —Ampelomyces—of powdery mildews in Maharashtra.

589.23

524.421 Ramchandra Rao. Taxonomic studies in some foliicolous and woody saprophytic fungi from Marathwada. Marathwada, Botany, 1964-66. Tilak, Sham Trimbak, Lecturer.

Work has been done on various ascomycetous genera, like Bagnisiella, Hysterium, Pringsheimia and Diatrype, and Deuteromycetous genera, like Haplosporella, Dichomera etc. Taxonomic studies have revealed several important features.

589.23

525.422 Seshadri, Vellala Subrahmanyasastry. Studies in Indian ascomycetes. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1963-66. Kamat, M. N., Professor of Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

The research deals with the development, sexual reproduction, cytology and chromosome studies in two genera—Mychosphaerella and Hysterium. Taxonomic studies in the genus Phyllachora are also planned. Studies in the ascomycetes and other fungi of Maharashtra and Mysore States are under way.

589.23

526.423 Tandon, Ghanshyam Dass. Taxonomic and physiological studies of certain microorganisms with special reference to Penicillia. Allahabad, Botany, 1965-68. Mehrotra, B. S., Reader.

A number of Penicillia from different sources have been isolated and are being studied in detail. Complete descriptions with full illustrations are being provided for each isolate. Some of them are turning out to be really good and interesting. The effect of lyophilization on the principal biochemical characteristics of certain industrial cultures will also be studied.

589.23

527.424 Waraitch, Karnail Singh. Studies on the Indian operculate discomycetes. Panjab, Botany, 1965-68. Thind, Kartar Singh, Professor.

105 species have been studied in detail both morphologically and anatomically. Out of these, 20 species are new to science while 75 species are new records for India. Cytology of 20 species has also been worked out. Cultural study has been done of only two species so far.

Jour. Ind. Bot. Soc. 43 ; 1964 : p.459-475.

589.23

Deuteromycetes

528.425 Bihari Lal. Cultural and pathological studies of certain fungi imperfecti. Allahabad, Botany, 1963-67. Tandon, Ram Narain, Professor (Retd.).

The most suitable medium, temperature and pH will be selected for detailed studies. The influence of different sources of carbon, nitrogen, sulphur and phosphorus on growth and sporulation of eight isolates of Colletotrichum will be studied. The pathway of utilization of various carbon sources and mixture of amino acids will be determined. Healthy and diseased tissues will also be analysed chromatographically. In order to control the diseases, different fungicides will be evaluated in the laboratory and effective ones tested on the hosts.

Occurrence of the perfect stage of Colletotrichum gloeosporioides Penz. on the leaves of Dieffenbatria amoena Hort ex. Gentil. Naturwiss. 20(S) ; 1965 : p.565.

589.24

529.426 Gehlot, Chhail Singh. Nutritional and pathological studies of some Melanconiales. Jodhpur, Botany, 1966-69. Bilgrami, K. S., Reader.

Numerous species of order Melanconiales have been isolated. The work has been restricted to Gloeosporium, Colletotrichum, and Vermicularia. Different isolates have been assigned proper systematic positions on the basis of comparative studies of conidial morphology and structure of acervuli. Work on pathogenicity of different isolates is in progress.

589.24

530.427 Madhusudhan Reddy, S. Taxonomic and nutritional studies on certain deuteromycets. Jodhpur, Botany, 1965-67. Bilgrami, K. S., Reader.

A large number of pathogenic fungi associated with leaf spots, fruit rot and vegetable spoilage have been collected and assigned their proper systematic positions. Studies have been restricted to Moniliales. The detailed systematic and taxonomic studies of Curvularia and Helminthosporium are in progress. On the basis of chromatographic analysis of the medium, the nutritional response of 5 species of Helminthosporium is being examined.

589.24

531.428 Shreemali, Jankilal. Taxonomic and physiological studies of some fungi associated with leaf spot diseases. Jodhpur, Botany, 1966-69. Bilgrami, K. S., Reader.

It is proposed to study a number of pathogenic fungi responsible for leaf spot diseases. The studies have been restricted to the Sphaeropsidales. A large number of species of Phyllosticta, botryodiploda, diplodia, sphaeropsis and Coniothyrium have been isolated. The species, after proper identification, have been assigned their respective positions. Detailed studies on the structure of the fruiting pustules of the above organisms are in progress.

589.24

Algae

532.429 Agarker, Madhukar Sakharam. Ecological studies on the algae of Bhopal. Vikram, Botany, 1966-70. Mall, L. P., Reader and Head of the Department.

589.3

533.430 Das, Veena. Studies on certain algae. Allahabad, Botany, 1966-69. Mitra, Anil Kumar, Reader.

Algae from natural conditions will be isolated and studied in unialgal and pure cultures to elicit their life histories and physiological importance, such as, fixation of atmospheric nitrogen or contribution to the growth of other plants by exudates etc.

589.3

534.431 Jayangoudar, Indira Shiddangduda. Hydrobiological studies on Ajwa Reservoir and Nimeta Water Works at Baroda and ecology and seasonal succession of algae in the oxidation ponds of Ahmedabad. Baroda, Botany, 1963-66. Chavan, A. R., Professor and Head of the Department.

The research deals with the biological problems connected with water and sewage purification. The solutions to these problems will make a distinct contribution to the advancement of knowledge pertaining to biological management of water supplies and sewage purification under tropical conditions in India.

589.3

535.432 Narsing Rao, A. An ecology of bottom living flora of three selected ponds in the vicinity of Botany Department. Osmania, Botany, 1964-67. Suxena, Mahender Raj, Professor and Head of the Department.

This study has been undertaken to find out the distribution of algae and protozoa living at the bottom of the shallow pans. The physico-chemical factors, specially the light and pH have been correlated with the seasonal variation along with various chemical factors. The vertical distribution of certain groups is also being studied. The role of the factors influencing the growth and distribution of these algae in freshwater pans will be studied in detail.

589.3

536.433 Pandey, Devesh Chandra. Studies on the algae from soils of India. *D. Sc.* Allahabad, Botany, 1963-70. Mitra, Anil Kumar, Reader.

The algal flora of certain paddy fields is being studied with special reference to seasonal variations and dominance in nature, and a comparison will be made with those that are appearing under different cultural conditions. Life history of new and interesting forms will be worked out and their physiological behaviour studied.

589.3

537.434 Subba Raju, Nallaparaju. An ecological and taxonomic study of the algal flora of the soils of Andhra Pradesh. Osmania, Botany, 1959-67. Suxena, Mahender Raj, Professor and Head of the Department.

The research primarily deals with the influence of certain physico-chemical factors, such as, texture of the soil, water holding capacity, hydrogen ion concentration, exchangeable calcium, total nitrogen content and organic matter on the development of algal flora in certain cultivated and uncultivated soils of this region. It also reveals the general composition and nature of the algal flora of the soils.

(1) Anabaena cylindrospermoides sp., nov., from the soils of Andhra Pradesh, India. Phykos. 1(2) ; 1962 : p.76-78; and (2) Parthasarathiella prolifica gen. et. sp. nov.: A new member of the Stigonemataceae. Trans. Amer. Micros. Soc. 81(1) ; 1962 : p.90-93.

589.3

538.435 Thomas, Aleyamma. Studies of cytosystematics of Indian algae with particular reference to algal flagellates. Banaras, Botany, 1966-68. Sarma, Y. S. R. K., Reader.

Different members of flagellates and some other algal forms have been collected from various localities of Varanasi. Some species of Euglena, Phacus and some Desmids have been isolated in pure culture. Cytological staining techniques are being employed with a view to determine the chromosome numbers and to study the karyology of the species.

589.43

539.436 Tiwari, Girdhari Lal. Studies on certain algae of rice fields. Allahabad, Botany, 1964-68. Mitra, Anil Kumar, Reader.

Collections of algae from paddy fields have been made and many of them obtained in unialgal cultures for their morphological studies in different cultural conditions. A few of the samples collected have been worked out for nitrogen fixation.

589.3

540.437 Vidyasagar Rao. Ecology of algae in a group of three small fresh water ponds. Osmania, Botany, 1963-67. Zafar, Abdul Rafique, Lecturer.

The study aims at collecting data on the physico-chemical complexes, distribution and periodicity of algae in a group of three ponds. An attempt is also being made to estimate the biological productivity with the help of radioactive $NaHCO_3$.

589.3

Chlorophyta

541.438 Jain, S. S. Studies on the Chlorophyta of Thana District with particular reference to the green algae of its hills and their environs. Bombay, St. Xavier's College, Bombay, 1962-67. Gonzalves, E., Professor (Retd.), St. Xavier's College, Bombay.

The Chlorophytes in ponds and streams in Thana District as also those in terrestrial situations and in hills have been studied. An attempt has been made to compare and contrast the green algae of the hills with those of the plains. The waters of fifteen ponds and streams have been periodically analysed to ascertain the factors controlling the occurrence and growth of the algae.

589.47

542.439 Ramjee. Studies on cytotaxonomy and cytogenetics of Indian Charophyta. Banaras, Botany, 1965-67. Sarma, Y. S. R. K., Reader.

About 25 taxa of Charophyta have been collected from different localities in the states of Assam, West Bengal, Orissa, Jammu & Kashmir and Andhra Pradesh for working out their morphology and cytology and correlating the cytological data with the taxonomy of the group. One new chromosome number, new to science, in the genus Nitella, collected from Assam as well as Kashmir, has been established.

589.47

543.440 Sheriff, Ahmedulla. Cytological and cytotaxonomic studies in certain members of Litiaceae. Bangalore, Botany, 1960-67. Nagaraj, M., Professor and Head of the Department.

Cytological and cytotaxonomic studies on several available species of Chlorophytum and Scilla are being made on the basis of populations to understand and establish the evolutionary relationships between the different taxa.

589.47

544.441 Siddiqi, Nighat Fatima. Studies on the nuclear cytology of some members of Chaetophorales in relation to their taxonomy. Aligarh. Botany, 1965-68. Abul Abbas, Lecturer.

589.47

545.442 Srivastava, Pushpa. Studies on the experimental cultures of certain Chlorococcales. Osmania, Botany, 1962-67. Jafar Nizam, Reader.

The present studies are confined to 6 species belonging to the genera of Chlorococcales. For these species, suitable media and suitable conditions, like temperature and illumination have been determined to get the optimum growth. Irradiation studies using X-rays, gamma rays and ultraviolet rays have been carried out and attempts made to study the effect of certain antibiotics on these organisms. Material has also been exposed to high altitude cosmic radiation.

589.47

546.443 Suryanarayana, Gunturu. Cytosystematics of algae. *Banaras, Botany, 1965-67. Sarma, Y. S. R. K.,* Reader.

Different members of fresh and marine green algae have been collected from Varanasi, some parts of Madhya Pradesh, Gujarat and Waltair sea coast. 5 species of Oedogonium, 3 species of Chlamydomonas, one member of Palmellaceae and Tetrasporidium species have been isolated in unialgal cultures. Chromosome numbers have been determined for 2 species of Oedogonium, 1 species of Chlamydomonas, one member of Palmellaceae, and of Tetrasporidium species.

589.47

547.444 Vidyavati. Experimental studies and nuclear cytology of certain Desmids. Osmania, Botany, 1961-67. Suxena, Mahender Raj, Professor and Head of the Department.

Cultural studies of artificially induced conjugation in Cosmarium, Euastrum and Closterium alongwith a study of the effect of ultraviolet irradiation on the conjugation process have been undertaken. The effect of low and high temperatures, monochromatic illumination, gamma rays, X-rays, ultraviolet rays and high altitude cosmic radiation on Desmid species will be studied. Cytological studies on 8 species of Desmids will also be done.

589.47

Bacillariophyceae

548.445 Krishnan, Mahalaxmi. Genetical analysis of auxospore formation in certain Diatoms. Osmania, Botany, 1965-69. Mohammed Hashim, Reader.

The cultures of Nitzschia and Rhopalodia sp. have been standardised and the influence of various factors affecting morphology, heredity and mutation is under study. Determination of the (+) and (–) strains has been done by raising clones and biometrical studies of size variations have been undertaken. Cytological studies to determine the chromosome number are in progress.

589.62

549.446 Raja Rao, V. N. Studies on Indian Diatoms. Madras, Botany, 1964-67. Desikachary, T. V., Professor.

Diatoms from various localities, such as, fresh water, brackish water, sea water, soil etc., have been isolated. The applicability of McDonald Pfitzer rule in 11 isolates is being studied. Cyclotella meneghiniana has been studied for its salinity tolerance. Morphological studies during progressive dimunition in cell size are under way.

589.62

550.447 Shah, Navin Maneklal. Studies on the seasonal variations of Phytoplankton pigments in the Arabian Sea off Cochin with special reference to inorganic nutrients. Kerala, Marine Biology & Oceanography, 1966-69. Kurian, C.V., Professor.

It is proposed to study the seasonal variations in the Phytoplankton pigments in relation to changes in inorganic nutrients. Measurements of primary production using C^{14} method will also be made at an offshore station.

589.62

551.448 Srivastava, Onkar Nath. Limnological studies of the Phytoplankton of aquatic ecosystems of U. P. Banaras, Botany, 1966-68. Mishra, J. N., Reader.

The present investigations are concerned with the composition and distribution of the Phytoplankton of the fresh water ecosystems, qualitative and quantitative determination of seasonal and periodic changes in the community structure, quantitative estimation of physico-chemical factors and physico-chemical requirements of the dominant species under natural conditions.

589.62

Cyanophyta

552.449 Augustine, Maliakal. Studies on the Cyanophyta of four districts of Bombay State. Bombay, St. Xavier's College, Bombay, 1962-67. Gonzalves, E., Professor (Retd.), St. Xavier's College, Bombay.

A systematic study has been made of the Cyanophyta occurring in the Kolaba, Nasik, Thana and Poona Districts. In addition, a few species have been cultured and analysed for free amino acids, peptides and proteins. Confirmation of these products and their quantitative estimation are in progress.

589.8

553.450 Chintamani, Ahalya. Effect of radiation on Blue-green algae. Banaras, Botany, 1965-67. R.N. Singh, Reader.

One of the species of water-bloom forming Blue-green algae has been isolated in axenic and floral cultures. Some of the spontaneously occurring morphological variations have also been isolated. Comparative studies are being made with respect to radiosensitivity to ultraviolet radiation and selective agents, like pencillin, streptomycin etc., are being used to pick up sensitive and resistant mutants.

589.8

554.451 Gupta, Ram Swaroop. Mutagenesis and adaptation studies in Blue-green algae. Udaipur, Botany, 1965-67. Kumar, H. D., Professor.

The Blue-green algae, Synechococcus sp., and Anacystis nidulans have been treated with nitrous acid, dimethyl sulphate, diethyl sulphate, maleic hydrazide and ultraviolet light and then tested for mutants. Treated strains are being characterized physiologically and genetically by comparison with untreated alga.

589.8

555.452 Gyan Prakash. The effects of selenium compounds and certain chemical mutagens on the growth of Blue-green algae. Udaipur, Botany, 1966-68. Kumar, H. D., Professor.

The effects of sodium selenite and selenate on the growth of Synechococcus sp., Anacystis sp., and Anabaena variabilis, in the presence and absence of sulphate, are being studied. Experiments on the adaptation of the algae to high concentrations of selenium compounds are also in progress.

589.8

556.453 Kale, Shanta R. Physiological effects of osmotically active substances on algae. Banaras, Botany, 1966-67. Talpasayi, E. R. S., Lecturer.

A method for the induction of heterocysts in Anabaena cylindrica and Anabaena ambigua has been developed. The physiology of cellular differentiation in heterocystous Blue-green algae is being studied with the help of this method.

589.8

557.454 Kashyap, Ajai Kumar. Genetic control of cell differentiation in Blue-green algae. Banaras, Botany, 1966-68. R. N. Singh, Reader.

A number of Blue-green algae have been collected locally and in isolated cultures. Their mineral nutritions and growth behaviour are being studied. In one of the Anabaena species, virus-like lytic agent has been observed. The study of genetic interaction between the virus and host in relation to cell differentiation is in progress.

589.8

558.455 Laloraya, Vinod Kumar. Studies on Blue-green algae of rice field soil of India. Allahabad, Botany, 1964-67. Mitra, Anil Kumar, Reader.

A survey of Blue-green algae present in paddy field soils of India has been made. Several of these have been isolated in unialgal cultures and identified and studied under different cultural conditions. Few of these have been obtained in pure bacteria free cultures and are being studied for the fixation of elementary nitrogen.

Curr. Sci. 33(20) ; 1964 : p.619-620.

589.8

559.456 Padmaja, T. D. Studies on Indian soil algae. Madras, Botany, 1963-67. Desikachary, T. V., Professor.

Studies on cultural variations of Blue-green coccoid algae have been undertaken and its importance in taxonomy is being analysed.

589.8

560.457 Pawan Kumar Singh. Factors affecting radiosensitivity of Blue-green algae. Banaras, Botany, 1965-67. R.N. Singh, Reader.

The effect of pre- and post-treatment with caffeine, acriflavine, chloremphenicol, different sources of nitrogen, different pigments of Blue-green algae on ultraviolet sensitivity. photoreactivation, photodynamic inactivation, as also the effect of irradiated medium, irradiated water, fresh medium and old medium on ultraviolet sensitivity have been observed with a number of Blue-green algae and a Blue-green algal virus, strain LPP-1.

589.8

561.458 Raman Rai. Nitrogen fixation by soil algae. Banaras, Botany, 1965-67. R. N. Singh, Reader.

Blue-green algae occurring on Usar soils have been collected together with soil samples. Algae have been isolated and brought into pure cultures. Exchangeable sodium and calcium, organic carbon, carbonate, bicarbonate, chloride, pH and nitrogen have been estimated by standard procedures of the soil alone as also in combination with Blue-green algae. The nitrogen content of each culture has been determined by micro-Kjildhol method using algae, algae and medium, and medium alone.

589.8

562.459 Sarma, Tangirala Anjaneya. Biochemical genetics of the Blue-green algae. Banaras, Botany, 1965-67. R. N. Singh, Reader.

Some unicelluar and filamentous Blue-green algae have been isolated in unialgal, axenic and clonand cultures. Attempts have been made to study their response towards the algicidal chemical, copper sulphate, used as a chemical mutagen. Experiments to study the effects of *ultraviolet radiation* are in progress.

589.8

563.460 Sharma, Radhe Shyam. Nutrition and growth of some water-blooms in pure culture. Banaras, Botany, 1965-66. R. N. Singh, Reader.

Nutritional requirements of two bloom forming Blue-green algae have been studied with regard to macro and micro inorganic sources to obtain maximum growth yield in pure cultures. Relative rates of sodium and potassium requirement have been determined. Ammonia, nitrate and urea serve as nitrogen sources. Anabaenopsis raciborskii grows well in the nitrogen-free medium. Higher growth rates on urea have also been found.

589.8

564.461 Tiwari, Devendra Nath. Mutations and recombination in Blue-green algae. Banaras, Botany, 1966-68. R. N. Singh, Reader.

The research deals with the isolation of unialgal and axenic clonal populations of certain Blue-green algae ; characterization of their mineral requirements, growth rate and generation times ; induction of mutation by ultraviolet irradiation, chemicals, such as, nitrous acid, hydrodynamics etc. ; isolation of mutants and their biochemical characterization ; and utilization of mutants for recombination experiments

589.8

Schizomycetes

565.462 Jayasankar, N. P. Studies on the aerobic microflora associated with the retting of coconut husk. I.I.S., Bangalore, Fermentation Technology Laboratory, 1963-66. Bhat, J. V., Professor.

The quantitative and qualitative pattern of the microflora of this system has been evaluated. The ability of the isolates to elaborate pectinolytic enzymes has been ascertained. The aromatic nutrition and mode of ring cleavage of phenol and catechol have been elucidated by certain bacteria and yeasts. A method has also been devised for estimating phloroglucinol.

589.90121

566.463 Kamat, Nirmala Kamalaksh. Studies on myxobacteria. I. I. S., Bangalore, Fermentation Technology Laboratory, 1966-70. Bhat, J. V., Professor.

Studies on myxobacteria—slime bacteria—from natural substrates have been undertaken. A few species have already been isolated from soil and water by cellulose and chitin enrichments. Some myxobacteria, which thrive on other bacteria, are being isolated by enrichment with the help of bacterial cells. The physiology of these organisms will also be studied to assign them a role in the scheme of nature or to exploit them in industry.

589.98

567.464 Koppikar, Suresh Ramachandra. Nature and interrelationship of bacteria decomposing asparagine. I. I. S., Bangalore, Fermentation Technology Laboratory, 1965-69. Bhat, J. V., Professor.

Asparagine enrichments inoculated with soil, sewage and sludge have resulted in the exclusive isolation and identification of two groups of physiologically active microorganisms—yellow pigmented Arthrobacter and spore forming bacilli. A study of their nutrition and ability to utilize other substrates suggests their active role in the cycle of elements.

589.95

568.465 Mukhopadhyay, Debiprasad. Physiological studies on bacteria governing seed formation in some plants. Calcutta, Agriculture, 1964-67. Bose, T. K., Lecturer.

589.9

569.466 Mullakhanbhai, Moiz Fidahusain. Studies on aerobic bacterial flora of soil and sewage decomposing glycine. I.I.S., Bangalore, Fermentation Technology Laboratory. 1963-66. Bhat, J. V., Professor.

Studies have been based on 361 bacterial cultures isolated from glycine enrichments. As many as 170 of them have been recognized as belonging to a genus Arthrobacter. The species in the genus have been identified, classified and examined on a IBM 1620 computer. These have also been studied with respect to their nutrition, metabolism and capability to attack aromatic compounds.

(1) Jour. IIS. 48 ; 1966 : p.142-158 ; (2) Curr. Sci. 35 ; 1966 : p. 58-59 and 237 ; and (3) ibid. 36 ; 1967 : p.115-118.

589.90121

ZOOLOGY

Physiology

570.1 Bandopadhyay, Himansu. Some aspects of digestive and reproductive physiology. Calcutta, Zoology, 1963-67. Raychaudhuri, D. N., Reader.

591.1

571.2 Bandyopadhyay, Alakkumar. Studies on the characteristics of R. N. A. in liver of animals undergoing immunisation. Calcutta, Zoology, 1965-67. Basu, U. P., Director, Bengal Immunity Research Institute, Calcutta.

591.14

Nutrition & Metabolism

572.3 Arora, O. P. Nucleoproteins studies of the Vicia-faba. Delhi, Zoology, 1965-68. Rao, S. R. V., Reader and Shah, V. C., Reader.

591.13

573.4 Katki, Aspandiar Gustadji. Studies in the metabolism of fatty acids. Bombay, Institute of Science, 1965-68. Magar, N. G.

Rats are fed on different fat diets and sacrificed after 8 weeks. The liver mitochondria are prepared by differential centrifugation method. Fatty acid oxidase system, oxidative phosphorylation, fatty acid activating enzyme, ATPase and mitochondrial swelling are studied. Malic dehydrogenase, isocitric dehydrogenase and malic enzymes are studied from the supernatant.

591.13

574.5 Sukhija, Surinder Singh. Fluoride metabolism. Panjab, Biochemistry, 1966-69. Sareen, K. N., Professor and Head of the Department.

It is proposed to study the fluoride metabolism in animal tissues with particular reference to connective tissue.

591.13

575.6 Verma, M. L. Comparative study of the role of saliva on the metabolic processes in the rumen of Zebu cattle and the buffalo. Punjab Agrl., Chemistry & Biochemistry, 1964-67. Bhatia, Iqbal Singh, Professor and Head of the Department.

Four parotid fistulated animals from either species have been taken up to study the effect of urea fed with chaffed, ground and long forms of common roughages on the feed intake, the rate of flow and chemical composition of parotid saliva. The relationship of the concentration of Na^{+}, K^{+}, Cl , $P^{=}$, bicarbonate, urea N, the total N in the saliva, its buffering capacity, the pH and other physiological characters with the composition of blood as measured by total N, urea N and NPN etc., will be studied. It is hoped that the information obtained from this study shall be useful in explaining some of the differences in the biochemical reactions occurring in the rumen of these two species.

591.13

Biophysics

576.7 Harwalkar, M. R. Radiation induced change in the gonads of plant bugs. Bombay, Atomic Energy Establishment, Trombay, 1964-68. Gopal Ayengar, A. R., Director, Biology Group, Atomic Energy Establishment, Trombay.

Ionizing radiations are known to inhibit gonadal development and produce morphological and cytological abnormalities in insects. The nature and mode of damage caused in X-irradiated Red Cotton bug, Dysdercus koenigii Fabr., with special emphasis on the gonadal tissue, is being investigated using histological and cytological techniques.

591.19155

577.8 Sivasubramanian, Pakkirisamy. The effects of ionizing radiation on development and differentiation in insects. Bombay, Atomic Energy Establishment, Trombay, 1964-68. Gopal Ayengar, A. R., Director, Biology Group, Atomic Energy Establishment, Trombay.

The Indian housefly (Musca nebulo fabricius) pupae of various age groups have been X-irradiated and examined after the completion of development for the effects produced on the differentiating cells of various organ systems. The effects on morphology and the mechanisms of adult emergence are being investigated.

591.19155

Biochemistry

578.9 Amrutavalli, Eswara. Metabolic effects of orotic acid in experimental animals. I. I. S., Bangalore, Biochemistry, 1964-68. Sarma, P. S., Professor.

The species specificity observed in orotic acid (OA) induced fatty liver (FL) has been exploited for the understanding of the mechanism of this FL production.

A decrease in free adenine nucleotides due to OA feeding induces FL in rat and the absence of this decrease in chick and mouse results in resistance against OA induced FL. The metabolic differences have been studied in the three species with respect to the uridine and adenine nucleotides.

591.19214

579.10 Bhathena, Sam Jehangirji. Effect of shark liver oil on lipid pattern of tissues of rats. Bombay, Institute of Science, 1965-68. Magar, N. G.

Shark liver oil of different species have been analysed for their chemical constituents. Rats are being fed on different diets containing different shark liver oil and sacrificed after 8 weeks. Tissues (liver, brain, heart, kidney and adipose) and serum have been analysed for various lipid constituents. Pancreas is being assayed for cholesterol esterase activity.

591.19293

580.11 Dattagupta, Swadesh. Biological synthesis of 5-ascorbic acid in animals. Calcutta, Biochemistry, 1965-68. Chatterjee, I.B., Lecturer.

591.1926

581.12 David, J. Suvarna Kumar. Mechanism of absorption of cholesterol and vitamin A. I. I. S., Bangalore, Biochemistry, 1962-67. Ganguly, J., Professor.

Both cholesterol and vitamin A enter into the micellar phase before entering the microvilli of rat intestine. Cholesterol is absorbed by displacement mechanism, whereas vitamin A gets accumulated before it is emptied into the lymph. Cholesterol and vitamin A ester hydrolases are situated in the microvilli, whereas the ester synthesising enzymes are present in the interior of the mucosa.

(1) Biochem. Biophys. Acta. 70 ; 1963 : p.490 ; and (2) Biochem. Jour. 98 ; 1966 : p.662.

591.1926

582.13 Deshmukh, Diwakar Shankarrao. Some aspects of vitamin A metabolism in normal and protein deficient rats. I.I.S., Bangalore, Biochemistry, 1961-66. Ganguly, J., Professor.

Biogenesis of retinoic acid in living rats has been conclusively demonstrated. Absorption of retinoic acid and retinol and their metabolic fate in living rats has been studied. Mechanism of storage of injected vitamin A has been elucidated. Metabolism of vitamin A in protein-deficient rats has been exhaustively studied and different blocks in the absorption, storage and mobilisation of vitamin A caused by protein deficiency have also been elucidated.

(1) Biochem. Jour. 90 ; 1964 : p.98 ; (2) ibid. 93 ; 1964 : p.499 ; (3) ibid. 96 ; 1965 : p.377 ; (4) Ind. Jour. Biochem. 1 ; 1964 : p.204 ; (5) ibid. 1 ; 1964 : p.164 ; (6) ibid. 4 ; 1967 ; and (7) Biochem. Biophys. Acta. 107 ; 1965 : p.120.

591.1926

583.14 Gajinder Singh. Comparative study of the quality and synthesis of microbial protein in the rumen of Zebu cattle and buffalo when fed on different rations. Punjab Agrl., Chemistry & Biochemistry, 1964-67. Bhatia, Iqbal Singh, Professor and Head of the Department.

Eight fistulated animals (4 each of zebu cattle and buffalo) are being fed on four different rations viz. non-urea, 17% urea, 35% urea and 50% urea, in order to study the quality and synthesis of microbial protein in the rumen of Zebu cattle and buffalo. The animals are being fed in such a way that each group will get each of the four rations in due course—Switch over system. Two digestibility trials with particular reference to nitrogen balance studies have been completed. In each of the trials, large volumes of rumen liquor drawn from the rumen of the two species is processed to get enough material of protozoa and bacteria for further fractionation into their different nitrogen containing components e.g. peptides, amino acids etc.

591.19296

584.15 Gangadhara, Nanjangud Suryanarayan Rao. Biochemical studies on the pituitary control of other endocrine glands in rats and frogs. Mysore, Chemistry, 1964-68. Ramaiah, Turuvekere Rangaiah, Reader.

A study of the effects of a non-steroidal pituitary inhibitor is being made. Its effect on the accessory organs of reproduction, with and without conjugation with sex hormones, has been studied. Its effect on nitrogen balance, blood constituents, insulin tolerance, adrenal compensatory hypertrophy and reproductive fertility is being studied.

591.192

585.16 Inamdar, *Anandthirth Rangachary*. *Effects of vitamins and hormones on the metabolism of coenzyme*, ubiquinone. I. I. S., Bangalore, Biochemistry, 1962-67. Sarma, P. S., Professor and Ramasarma, T., Lecturer.

Studies on the changes in ubiquinone concentration and synthesis in the liver of rat under different nutritional and stress conditions have been undertaken. A general theme has developed out of this work that liver-ubiquinone increased under the following conditions of stress : (1) Thyrotoxicosis (2) Vitamin A deficiency (3) Alpha-chlorophenoxy isobutyrate feeding owing to lowered catabolism. In nutritional conditions, like folate-deficiency and starvation, ubiquinone decreases, possibly due to decreased synthesis.

591.1926

586.17 Jagannadha Rao, Addicam. Studies on gonadotropic hormones. I. I. S., Bangalore, Biochemistry, 1966-69. Moudgal, N. R., Asstt. Professor.

The fate of gonadotropic hormones at their target gland is being investigated by looking into the intracellular location of LH and FSH by using fluorescent a/b technique, and the possible inactivation of gonadotropins by target gland specific enzymes. Effect of specific gonadotropic inhibitors on steroidogenesis will be studied using differential cell suspensions of gonads.

591.1927

587.18 Juneja, Harbans Singh. Metabolism of vitamin A. I. I. S., Bangalore, Biochemistry, 1962-67. Ganguly, J., Professor.

Vitamin A deficiency affects the biosynthesis of steroid hormones in adrenals, testes and ovaries of rats. The conversion of △5-3β-Ol steroids to △4-3-oxo steroids is greatly reduced, but can be corrected by the in vitro addition of retinol and retinoic acid. Weanling rats of either sex raised to maturity on retinoic acid fail to reproduce. In females, gestation resorption could be prevented by treatment with different steroid and protein hormones.

Biochem. Jour. 99 ; 1966 : p.138.

591.1926

588.19 Kambli, V. B. Studies in protein malnutrition. Bombay, Wilson College, Bombay, 1962-67. Airan, J. W., Principal, Wilson College, Bombay.

Changes taking place in animal serum and liver are being studied by noting enzymatic, immunological and histological changes and by protein fractionation. Animals which had attained protein malnourished state have been fed back with (i) a known protein source, like casein and (ii) a local protein source made out of pulses. The extent to which the recovery took place by feeding these proteins is under study.

591.19256

589.20 Kaplay, Suresh Shankerrao. Enzyme chemistry. Nagpur, Biochemistry, 1964-68. Jagannathan, V., Head of the Division of Biochemistry, National Chemical Laboratory, Poona.

Acetylcholinesterase has been solublised from caudate nucleus of ox brain by treatment with crystalline elastase. The enzyme has been purified about 50-fold by conventional methods as treatment with salmine sulfate, fractionation with ammonium sulfate and fractionation of DEAE-cellulose column. It is a true or specific acetylcholinesterase.

Purification of ox brain acetylcholinesterase. Ind. Jour. Biochem. 3(1) ; 1966 ; p.54-55.

591.1925

590.21 Krishna Mallia, Anantha. Studies on carotenoids and vitamin A_1 and A_2. I. I. S., Bangalore, Biochemistry, 1964-69. Cama, Homi R., Professor.

Epoxides of 3-dehydrovitamin A have been synthesised and characterised. The metabolism of vitamin A_1 epoxy aldehyde in rat has been studied. Retro-3-dehydroretinyl acetate has been synthesised and the metabolism in rat has been studied. It has been demonstrated that retro vitamin A_2 is isomerised to vitamin A_2 when fed to vitamin A-deficient rat.

591.1926

591.22 Leelavathi, Doddamane Eshwarappa. Studies on the metabolism of nicotinamide and nicotinic acid. I. I. S., Bangalore, Biochemistry, 1962-67. Sarma, P. S., Professor.

Extra physiological level of nicotinamide induces growth inhibition in Aspergillus niger. The primary effect of nicotinamide appears to be increase in adenine nucleotides level, which in turn may produce decrease in uridine nucleotides and polysaccharide content. Nicotinamide reverses orotic acid fatty liver in albino rats by increasing adenine nucleotides level.

Ind. Jour. Biochem. 1(22) ; 1964 : p.93-94.

591.1921

592.23 Mahdwa Raj, H. G. Immunoendocrinology. I. I. S., Bangalore, Biochemistry, 1964-68. Moudgal, N. R., Asstt. Professor.

A radioimmunoassay for sheep pituitary luteinizing hormone has been developed and physiological level of this hormone in various species is under investigation. Role of pituitary gonadotropin in implantation process in the rat has also been investigated. Preliminary results indicate that luteinizing hormone is essential. Biological characterization of a follicle stimulating hormone inhibitor from urine of monkeys and a comparison of its effects with gonadotropin antisera have also been studied.

(1) Ind. Jour. Biochem. 2(4) ; 1965 : p.250-252 ; and (2) Endocrinology. 78(5) ; 1966 : p.923-928.

591.1927

593.24 Mathur, Satya Narain. Studies on absorption and metabolism of carotenoids and vitamin A in chick. I.I.S., Bangalore, Biochemistry, 1966-70. Ganguly, J., Professor.

For the first time attempts are being made to isolate the microvilli from the chicken intestine. The distribution of various enzymes in different cell fractions of the chick intestine mucosa involved in the absorption of carotenoids and vitamin A are being investigated.

591.1926

594.25 Nath, Nirmalendu. Studies on vitamin B_{12} and transmethylation in metabolic disorders. Nagpur, Biochemistry, 1962-67. Nath, Madhav Chandra, Professor and Head of the Department.

Deficiency of vitamin B_{12} and decrease in transmethylation reaction has been observed on animals having experimental diabetes, atherosclerosis, anaemia, saturated fat feeding and when kept on prolonged period of ketone bodies injection. Vitamin B_{12} and hydrolysed GCA could prevent such discrepancies. The causative factors for these metabolic disorders are thought to be the ketone bodies.

(1) Nature. 208 : 1965 : p.1001 ; (2) Ind. Jour. Med. Res. 53 ; 1965 : p.1010 ; (3) Ind. Jour. Exp. Biol. 4 ; 1966 : p.123 ; and (4) Jour. Nutr. & Diet. Apr. '66.

591.1926

595.26 Patel, Ambrish Janardanbhai. Studies on avian and mammalian heart tissues. Baroda, Biochemistry, 1963-66. Ramakrishnan, C. V., Professor and Head of the Department.

Studies on avian and mammalian heart tissues have suggested that the differences in nutritional requirement with regard to glutamic acid and glutamine between avian and mammalian heart tissue cultivated in vitro reflects differences in the nature of ammine removal mechanism.

591.192

596.27 Raghavan, Sarangapani Srinivasa. Studies on lipid metabolism in rats. I. I. S., Biochemistry, Bangalore, 1963-68. Ganguly, J., Professor.

Dietary triglycerides have been hydrolysed to monoglycerides and free fatty acid by pancreatic lipase in the intestinal lumen. Direct entry of monoglycerides, preferential uptake of free fatty acid, and a very rapid acylating mechanism in the mucosal cell have been observed. The phospholipids of the cell may also mediate the transfer of fatty acids across the cell membrane.

Nature. 206 ; 1965 : p.189.

591.19293

597.28 Ray, Chandralekha. Studies on the biosynthesis of 5 ascorbic acid in different species. Calcutta, Biochemistry, 1965-68. Chatterjee, I. B., Lecturer.

591.1926

598.29 Sairam, Malur Ramaswamy Iyengar. Studies on monkey pituitary gonadotropins. I. I. S., Bangalore, Biochemistry, 1963-67. Moudgal, N. R., Asstt. Professor.

A potent and specific follicle stimulating hormone inhibitor has been isolated from monkey urine. This inhibitor has been characterised as an apparently homogeneous glycoprotein, with an approximate molecular weight of 65,000. It is non-species specific. It is heat labile, reversibly denatured by 6M urea, but irreversibly with 4M guanidinium hydrochloride and sensitive to extremes of pH. It is proposed to study the properties of FSH inhibitor and to isolate and characterise the gonadotropin inhibitor from human urine.

Endocrinology. 79 : 1966 : p.923.

591.1927

599.30 Venkatasubbaiah, Papasani. Studies on lipid metabolism. I. I. S., Bangalore, Biochemistry, 1965-70. Ganguly, J., Professor.

The intestinal microvilli of rats have been isolated and the lipid composition studied during starvation and after feeding the animals with radioactive fatty acids with 25% fat. Radioactivity has been incorporated into all the fractions of lipid, and significantly found in phospholipids even at 5 minute interval.

591.19293

Pathology

600.31 Parvesh Kaur. Physiological basis of host specificity with reference to Callosobruchus maculatus. Delhi, Zoology, 1958-67. Saxena, K. N., Reader.

591.2

601.32 Sheriff, Eqbal Musthafa. Etiology and pathogenesis of gastric ulcers in toads and rats. Mysore, Zoology, 1963-67. Appaswamy Rao, Marazkar, Reader.

Gastric ulcers are formed due to hyperacidity, decreased resistance of the gastric epithelium and vascular occlusions. Gastric ulcers have been induced in starved toad by feeding hydrochloric acid of varying concentrations. Inflammation of gastric epithelium or superficial ulcers have been produced by feeding 0.25 and 0.5 N HCl. Acute or perforated ulcers are produced by 0.75 or 1 N HCl. Even in vitro experiments have shown that increased acidity causes ulceration indicating that hyperacidity is the main cause. Administration of adrenocortical steroids or ACTH causes ulcers in pylorus ligated rats. Adrenalectomy inhibits shay ulcers while administration of adrenocortical steroids enhances the formation of both shay and glandular ulcers.

591.2

602.33 Thomas, M. I. Studies in the toxicity of the newer insecticides to some of the common insects occurring in South India. Kerala, Zoology, 1965-70. Mathew, A. P., Professor of Zoology, Mar Ivanios College, Trivandrum.

Morphological and anatomical studies of the tarsi of various insect groups have been made to understand the structure and permeability of the pulvillus and the connected areas in these insects. The susceptibility of the insects to various types of insect poisons applied as residual dusts and sprays is being studied.

591.2

Maturation

603.34 Gupta, P. D. Yolk formation in animal oogenesis with particular reference to the role of RNA. Panjab, Zoology, 1963-67. Vishwa Nath, Professor Emeritus.

Many groups of animals viz. Insecta, Crustacea, Myriapoda, Mollusca, Fishes, Amphibia etc., are being investigated for yolk formation. Cytochemical studies in the oocytes of these groups of animals have been completed.

(1) Experientia. 22(6) ; 1966 : p. 374-375 ; and (2) Naturwiss. 53(21) ; 1966 : p.560.

591.3

Morphology & Descriptive Anatomy

604.35 Bullemma, M. L. Studies on pituitary gonadotropins. Delhi, Zoology, 1966-69. Duraiswami, S.

591.44

605.36 Dutt, N. Hara Gopala. Cytological and cytochemical studies on the pituitary and biochemical aspects of the ovary in Anabas scandens. Annamalai, Zoology, 1962-66. Govindan, P., Professor and Head of the Department.

Cytological and cytochemical changes in various cell types of the pituitary during the ovarian cycle have been studied. Histochemical studies of the oocyte during its vitellogenesis have also been made. Biochemical studies related to amino acids, alkaline phosphatase, carbohydrates and nucleic acids during the oocyte growth are in progress.

591.44

606.37 Hasurkar, Shrikrishna Shripad. Studies on development of chondrocranium and skull in Thynnichthys. Vikram, Zoology, 1966-70. H. Swarup, Professor and Head of the Department.

591.48

607.38 Kulshrestha, Sheelendra Kumar. Studies on the development of skull, weberian ossicles and vertebral column in Labeo rohita, Ham. Bush. Vikram, Zoology, 1966-70. H. Swarup, Professor and Head of the Department.

591.48

608.39 Shrivastava, Shyam Bihari. Development of the cranio vertebral joint in Rasbora. Vikram, Zoology, 1965-70. H. Swarup, Professor and Head of the Department.

591.48

Ecology

609.40 Ayyakkannu, K. Interstitial ecology. Annamalai, Marine Biology, 1966-69. Seshaiya, R. V., Director, U. G. C. Centre for Marine Biology, Porto-Novo.

A quantitative study of the interstitial fauna of Porto-Novo coast is in progress.

591.5

Economic Zoology

610.41 Mehta, R. C. Physiological basis of host specificity of certain plant feeding insect pests. Delhi, Zoology, 1962-67. Saxena, K. N., Reader.

591.6

Histology & Cytology

611.42 Gogate, Shripad Shankar. Studies on phosphatases in animal tissues. Bombay, Institute of Science, 1964-67. Inamdar, N. B., Professor.

The work deals with the study of acid and alkaline phosphatases in female reproductive organs in mice. Effects of ovocyclin on the phosphatase cycle are also being studied.

591-8

612.43 Sharda, Action of clomiphene (MRL41) and vincaleucoblastine (V. L. B.) on chromosomes. Delhi, Zoology, 1963-67. Seshachar, B. R., Professor and Head of the Department and Rao, S. R. V., Reader.

591-8

613.44 Sharma, Kamala. Cytochemical studies on mouse tissues.

Bombay, Institute of Science, 1963-67. Inamdar, N. B., Professor.

The effect of steroid hormone, estrogen, on mice tissues is being studied in relation to mitotic activities, DNA contents of nuclei and RNA contents of cells. Quantitative data has been collected.

591.8

614.45 Shirole, P. D. Effects of some chemicals on animal tissues. Bombay, Institute of Science, 1962-67. Inamdar, N. B., Professor.

Chemicals used in this investigation are Urethan and Podophyllin. These have been administered in varying doses to swiss albino mice and the effect studied on various tissues. Quantitative estimations are being made by microspectrophotometry.

591.8

Regional Zoology

Marine Zoology

615.46 Divakaran, Vettikkattutharayil Krishnan. Ecology and adaptations of the fauna of the intertidal region, Neendakara coast, with special reference to their respiration and feeding habits. Kerala, Zoology, 1965-69. John, C. C., Professor, Sree Narayana College, Quilon.

A fairly good collection has been made of the macro fauna and most of them have been indentified up to the genera. A few marine mites have also been collected. The ecology of the important groups, especially annelids, occurring in the shore region, their relation to the tides and waves and the nature of the environment are being studied.

591.92

616.47 Hridayanathan, Choondanil. Fishes and crustaceans of the mud bank regions of the S. W. coast of India. Kerala, Oceanography & Marine Biology, 1966-69. Kurian, C. Varaghese, Professor.

Samples of fauna have been collected from the mud banks of Alleppey and the crustaceans and fishes have been analysed. A general survey of the banks, as occurred during the year, has been made.

591.92

617.48 Nachiappan, N. Aquatic fauna survey of Veeranam Lake. Annamalai, Zoology, 1965-68. Govindan, P., Professor and Head of the Department.

Changes in the oxygen, carbon dioxide, nitrite, nitrate, phosphate, silicate chloride and hydrogen ion concentration of the water mass of Veeranam Lake are being investigated. Qualitative and quantitative studies of plankton and their productivity are in progress. The correlation between the plankton production and hydrological condition will be worked out.

591.92

618.49 Nayar, Thirucode Paramaswaran Kunjuraman. Embryology of Paratelphusa hydrodromus. Kerala, Marine Biology & Oceanography, 1963-69. Krishna Pillai, N., Research Officer.

A detailed study of the gross anatomy of the reproductive organs, oogenesis, spermatogenesis and the embryological development up to the time of hatching is envisaged.

591.92

619.50 Santhakumari, Valliyamma. Studies on the parasites and associates of marine wood boring organisms. Kerala, Marine Biology & Oceanography, 1965-68. Balakrishnan Nair, Narayana, Reader.

A systematic study of the parasites and associates of the marine wood boring organisms will be made to determine the nature of relationship of the associates and their effects on the host. The biology of the associates, and the physico-chemical and biological conditions under which they live and reproduce will also be studied and tests conducted on the possible biological control of wood borers.

591.92

620.51 Sawant, K. B. Studies on macro-benthic fauna off Bombay coast. Bombay, Taraporewala Marine Biological Research Station, Bombay, 1963-67. Kulkarni, C. V., Director, Taraporewala Marine Biological Research Station, Bombay.

The work comprises qualitative and quantitative determinations of fauna upto 8-fathom level. The fauna has been correlated with seasonal variations in hydrological conditions, oxygen, temperature, salinity, phosphates and pH. Comparison with inter-tidal fauna to understand the extension range and contribution as a biomass for fish-food have also been undertaken. Salinity tolerance experiments have been conducted to understand the dilution effect of monsoon.

591.92

621.52 Surendra Singh. On certain bonellids of Indian waters. B.I.T.S., Pilani, Zoology, 1965-67. Datta Gupta, A.K., Professor and Head of the Department.

591.92

622.53 Venkatakrishnan, Ramachandran. Studies on the biology of marine wood boring organisms of Indian coasts. Kerala, *Marine Biology & Oceanography, 1965-68.* **Balakrishnan Nair, Narayana, Reader.**

It is proposed to study the seasonal settlement of marine fowlers and borers and their interrelations. The biology of the genus Sphaeroma will be studied in detail with emphasis on sex ratio, brood size, incidence of gravid females and juveniles, horizontal and vertical distributions, physico-chemical factors that affect the intensity, breeding and distribution, and the limiting factors in the ecology and growth rates. The role of marine fungi in the ecology of crustacean borers will also be studied.

591.92

Fresh Water Zoology

623.54 Bhowmik, Mati Lal. Environmental factors affecting fish-food in fresh water fish ponds in Kalyani, West Bengal. Kalyani, Zoology, 1965-68. Moitra, S. K., Lecturer.

Limnological investigations of fresh water fisheries in Kalyani are being made to determine the limits within which the various hydrological factors and the pond soil influence optimum productivity of plankton and benthos. These studies will help determine the suitability of habitats in time and space for cultivable fish species.

591.929

624.55 John, Varkey. Hydrobiological survey of fresh water conservatories of Kerala with special reference to physiology of certain groups. Kerala, Zoology, 1963-67. Alexander, Koleth Mathew, Lecturer.

A hydrobiological survey of certain rivers of Malabar is being done to ascertain the factors which affect the productivity therein. Physiological investigations on certain fishes inhabiting these rivers, as metabolic studies, colour change mechanisms, biochemical composition of tissues and bioassay experiments are also being carried out.

591.929

625.56 Khan, Jamil A. Studies on the general limnology of inland waters of Aligarh District. Aligarh, Zoology, 1965-68. n. g.

591.929

626.57 Sumitra, V. Limnological studies of some tropical ponds. Madurai, Zoology, 1966-69. Job, S. V., Reader.

The investigation is concentrated on a static and two astatic ponds. The physico-chemical properties of the water and soil are being studied. Qualitative and quantitative analysis of the plankton and their seasonal changes are under study. Productivity problems are also being considered.

591.929

627.58 Suresh Babu, L. Physical, chemical and biological aspects of the Sasthamkotta Lake. Kerala, Zoology, 1965-68. John, C. C., Professor of Zoology, Sree Narayana College, Quilon.

The work includes a faunistic study of the Sasthamkotta Lake, the only fresh water lake of Kerala. A few weed forms have been found. The systematics and biology of these forms are under study.

591.929

Invertebrates

628.59 Abdul Rahaman, Abdul Subahan. Reproductive and nutritional cycles in a few invertebrates. Madurai, Zoology, 1964-67. Krishnaswamy, S., Professor.

The reproductive and nutritional cycles in starfish, crabs and cephalopods have been studied with reference to biochemical aspects, such as, protein, carbohydrate, lipid and nucleic acid. The influence of environmental factors on the breeding periods of the animals has also been studied.

592.05

629.60 Florence Mary, R. Studies on the integument of some invertebrates in relation to regulation of body fluid concentration. Madras, Zoology, 1966-68. Krishnan, Ghenta, Professor.

Crustaceans regulate the concentration of body fluids through certain permeable regions of the cuticle. It is proposed to study the modifications in the structure and chemical composition of the cuticle in the permeable regions and relate these features to the properties of the cuticle in a number of animal types.

592.047

Protozoa, Parazoa & Metazoa

630.61 Abraham, Thomas P. Studies on sponges. Kerala, Zoology, 1964-67. Jones, S., Director, Central Marine Fisheries Research Institute, Mandapam.

It is proposed to study the systematics and ecology of Indian sponges along with the larval development of some selected species. Other studies, namely, the larval behaviour, selection of the substratum, reaction to light etc., will also be studied. Specimens have been collected from Gulf of Mannar, Palk Bay, Laccadive Archipelago, Andaman & Nicobar Islands, and Gulf of Kutch etc.

593.4

631.62 Gopinadha Pillai, C. S. Studies on Indian corals. Kerala, Zoology, 1964-67. Jones, S., Director, Central Marine Fisheries Research Institute, Mandapam.

The research deals with the systematics and ecology of Scleractinian corals of the seas around India. The major attention is being paid to the coral fauna of Mandapam and its vicinities in Palk Bay and Gulf of Mannar in South India. A limited number of species from the Laccadive Archipelago and Andaman islands are also being considered.

593.6

632.63 Krishnan, Subbaraman. Studies on the reproductive and nutritional cycles of Holothuria scabra Jager. Madurai, Zoology, 1964-67. Krishnaswamy, S., Professor.

Reproductive and nutritional cycles in H. scabra have been studied with reference to biochemical and cytochemical changes. The environmental factors which affect the breeding activity have also been observed. These studies have shown that both these cycles are interrelated.

593.96

633.64 Radha, Edappallath. Studies on metazoan parasites of a few families of fishes of Madras. Madras, Zoology, 1963-67. Ramalingam, Kamaraswami, Reader.

Faunistic study of the monogenetic trematodes of the fishes of the family Carangidae, Sciaenidae, Hemirhampidae and Belanidae has been undertaken. The ecology of the monogenea occuring on Caranx kalle and Caranx ortleri, and life history of Gastro cotyle indica and Carangoides ovovivtpara have also been investigated.

593

Plasmoderma & Mastigophora

634.65 Balaraman, S. Physico-chemical and biological aspects of the fauna of the coconut husk retting grounds with special reference to the ciliates. Kerala, Zoology, 1965-68. John, C. C., Professor of Zoology, Sree Narayana College, Quilon.

It is proposed to study the microorganisms and physico-chemical conditions of the retting grounds to find out the correlation, if any, between these factors and the process of retting. On preliminary survey ciliates have been found abundantly and hence special importance is given to them.

593.172

635.66 Gopinath, Vasanthi. Studies on pantostomids. Kerala, Zoology, 1965-68. Antony, N. M., Reader.

It is proposed to study the comparative anatomy of Raillietiella gehyrae and Kiricephalus pattoni; histopathology of experimentally and naturally infect host tissues; and the main problems in physiology, such as, digestion and moulting.

593.1

636.67 Sapra, Gulshan Rai. Role of RNA in morphogenesis of ciliates. Delhi, Zoology, 1964-68. Seshachar, B. R., Professor and Head of the Department and Dass, C. M. S., Professor.

593.172

637.68 Saxena, D. M. Cytochemical, enzymatic and amino acid studies in some ciliates. Delhi, Zoology, 1962-67. Seshachar, B. R., Professor and Head of the Department.

593.172

Hydrozoa

638.69 Bhattacharyya, Satyabrata. Cellular mechanism of regemation in hydra. Calcutta, Zoology, 1964-67. Mookerjee, Sivatosh, Professor and Head of the Department of Zoology, Presidency College, Calcutta.

593.7

639.70 Chakrabarti, Asim. Analysis of the structural basis in hydra. Calcutta, Zoology, 1964-67. Mookerjee, Sivatosh, Professor and Head of the Department of Zoology, Presidency College, Calcutta.

593.7

Mollusca & Molluscoidea

640.71 Mandal, Gopal Chandra. The excretory structure of gastropod molluscs and the relationship between ammonia uric acid excretion and habitat. Calcutta, Zoology, 1963-67. Ghosh, K. C., Reader.

594.3

641.72 Menon, Narayana Ravindranatha. Studies on the Polyzoa of the south west coast of India. Kerala, Marine Biology & Oceanography, 1963-66. Balakrishnan Nair, Narayana, Reader.

A taxonomic study of the Bryozoa of the west coast has been undertaken. Hundred and one species occurring in the littoral and sublittoral have been described. Ecology of the bryozoans of the Cochin Harbour, especially the estuarine forms, is being studied with special reference to salinity, vertical distribution, and interspecific and intraspecific influences. Growth rates of typical representatives and distributional aspects will also be studied.

594.7

642.73 Pazhayadath, Sowmini. Studies on skeletal structures in molluscs. Madras, Zoology, 1964-68. Krishnan, Ghenta, Professor.

Structure, formation and chemical composition of the shell of Mytilus viridis, Lamellidens marginalis and Meretrix casta are being studied by histochemical methods, chromatographic analysis and electrophoresis. The study of the secretory nature of the mantle and the analysis of the protein, carbohydrate and lipids in the shell is in progress.

594.047

Pelecypoda

643.74 Arun Shanker Narain. Studies on the functional morphology and beat of the heart of certain fresh water bivalves. Gorakhpur, Zoology, 1965-67. Chaudhry, Hari Shanker, Professor and Head of the Department.

The work includes a study of the gross anatomy of heart, the blood picture, and search for a suitable saline for the isolated heart of certain fresh water bivalves, Study of the heart-beat and the effect of certain drugs thereon is also proposed to be undertaken.

594.1

644.75 Krishnamurthy, S. Food, feeding and nutritional studies of bivalves. Annamalai, Marine Biology, 1964-67. Seshaiya, R. V., Director, U. G. C. Centre for Marine Biology, Porto-Novo.

It is proposed to study the role of microbes in the nutrition of some estuarine and marine bivalves. The antibiotic properties of the tissues of some bivalves will also be studied.

The antibiotic properties of the tissues of some bivalves. Proc. IAS. 64B (2) : p.110.

594.1

645.76 Puthicherry, Varkey Cheriyan. Studies on the bivalve molluscs in the port of Cochin area. Kerala, Marine Biology & Oceanography, 1965-68. Kurian, C. V., Professor.

Tolerability of the bivalves to different physico-chemical conditions, food requirements, breeding conditions, larval requirements etc., are being studied.

594.1

646.77 Saraswathy, Madhavan. Studies on the shipworms of the west coast of India. Kerala, Marine Biology & Oceanography, 1963-66. Balakrishnan Nair, Narayana, Reader.

The research deals with the taxonomy and morphology of selected representatives to elucidate evolutionary trend and comprise detailed studies on the breeding cycle, growth rates, salinity tolerances, sequence of sexual phases, period of settlement, vertical distribution and biochemical changes attending the breeding cycle of the most destructive species in the locality, namely, Nausitora hedleyi.

(1) Jour. Mari. Bio. Assn. India. 6(2) : p.309-311 ; and (2) Jour. Anim. Morphol. Physiol. 12(2) : p.266-270.

594.1

Cephalopoda

647.78 Bernice, Sara Jeevaranjitham R. Studies on the biology of Streptocephalus. Madurai, Zoology, 1964-67. Krishnaswamy, S., Professor.

The habit, habitat and behaviour of Streptocephalus dichotomus in natural conditions have been studied. Detailed analysis has been made on the food, feeding mechanism and digestion. The post embryonic development has been studied. Investigations have been made on the physiology of respiration and excretion. The chemical composition of the body and the succinic dehydrogenous activity have also been estimated.

594.5

648.79 Sudhakar, Amilyakumar. Studies on the gastro-intestinal tracts and associated glands of Hemidoatyles flarivividis ruppell and Calotes versicoolar dandin. Calcutta, Zoology, 1964-67. Ghosh, K. C., Reader.

594.5

649.80 Varghese, P. Oommen. Digestive system of cephalopods. Kerala, Marine Biology & Oceanography, 1964-67. Dinamani, Parameswara, Lecturer.

The study on the organs and process of digestion in a large number of coleoid cephalopod molluscs has been undertaken. Analysis of gut contents and histology of the gut and associated glands in the available species of Sepioids and Loliginae of the Kerala waters is being investigated.

594.5

Wormlike Animals

650.81 Bapat, Sheela Krishna. Histochemistry of Leech epididymis.

Shivaji, Zoology, 1965-67. Kamat, D. N., Head of the Department.

No work has been done on the structure of functional role of Leech epididymis so far. Hence it is proposed to study it histologically, cytologically—golgi apparatus and mitochondria, and histochemically, and to compare it with mammalian epididymis.

595.15

651.82 Deshpande, Kalidas Shankar Rao. Taxonomy and physiology of Helminthosporium species. Marathwada, Botany, 1964-66. Deshpande, Keshav Balwant, Professor and Head of the Department.

Four new species of Helminthosporium have been isolated from different substrata and identified on the basis of their morphology, cultural characters and pathogenicity. A study of the various nutritional and physical factors and their effect on growth, sporulation, morphogenesis and carbon metabolism has been undertaken. Production of pectolytic enzymes, their properties and pathogenicity will also be studied with special reference to one species of Helminthosporium.

595.16

652.83 Raina, Maharaj Krishan. Studies on Helminth parasites of some vertebrates of Kashmir : Monographic study of Avitellina. Jammu & Kashmir, Zoology, 1964-67. Fotedar, D. N., Reader.

The studies include taxonomy, morphology and histology of the genus Avitellina and revision of the genus and some taxonomic studies of other parasites.

(1) On a new species of the genus Posthodiplostomum dubois, 1936, from Milvus migrans lineatus common kite in Kashmir. Kashmir Sci. 1(1-2) : 1964 : p.64-69 ; (2) New species of the nematode genus Kalicephalus molin, 1861, from a snake in Kashmir. ibid. 3 (1-2) ; 1966 ; and (3) On a new species of the trematode Lyperosomum loss, 1899, from Corvus monedula seemmeringii, common jackdaw in Kashmir. Ind. Jour. Hel. 17(1) ; 1965 : p.54-62.

595.1

Platyhelminthes

653.84 Chattopadhyaya, Devika Rani. Studies on trematode parasites of reptiles. Osmania, Zoology, 1964-67. Simha, Shyam Sunder, Lecturer.

Large number of species of trematodes have been collected from fresh water and marine tutles, fresh water and sea snakes and lizards. Studies on their structe, systematics and life cycle are in progress.

595.122

654.85 Kaw, Lalita. Studies on the helminth parasites of Kashmir birds. Jammu & Kashmir, Zoology, 1964-68. Fotedar, D. N., Reader.

Some new records of trematodes have been worked out from common domestic duck and fowl. Several species of cestodes including some new forms have been studied. Besides, some Spirurids have also been worked out.

New Diplotriaenid nematode from the body cavity of Acridotheres tristis (Linnaeus). Kashmir Sci. 2(1-2) : p.125-131.

595.12

655.86 Kulkarni, Mangala Waman. The trematode parasites of Fishes and Amphibia. Marathwada, Zoology, 1965-68. Syed Mehdi Ali, Professor and Head of the Department.

Systematic study of trematodes of fresh water as well as marine fishes is envisaged. A number of trematode parasites belonging to twenty five genera have been collected. The identification, measurements and drawings are being carried out.

595.122

656.87 Ratnamala Rao. Structure, systematics and life cycles of digenetic trematodes of Amphibia found in Andhra Pradesh. Osmania, Zoology, 1965-67. Satyanarayan Singh, Professor and Head of the Department.

Trematodes infesting frogs and other amphibians in various parts of Andhra Pradesh have been collected and indentified. The extensive collection made includes a new genus and species of flukes. A detailed study of this species has been completed. Life cycles of species of flukes commonly met with in frogs in Hyderabad are being worked out.

595.122

657.88 Shinde, Govindrao Bhaurao. The cestode parasites of the vertebrates. Marathwada, Zoology, 1962-66. Syed Mehdi Ali, Professor and Head of the Department.

A systematic survey of the cestode parasites of vertebrates from Marathwada has been undertaken. Many new interesting forms have been collected and studied.

595.121

658.89 Sivasankara Pillai, Velayudhan Pillai. Trematode parasite of fishes. Kerala, Marine Biology & Oceanography, 1965-68. Krishna Pillai, N., Research Officer.

Collection of material is in progress. Monogenetic trematodes, parasitic to fishes, are very abundant. Hence the work is limited to a study of the parasites of the more common food fishes of the Kerala coast. The work is exclusively taxonomic in nature.

595.122

659.90 Tickoo, Ratni. Studies on the morphology and life cycle of some helminth parasites from amphibians in Kashmir. Jammu & Kashmir, Zoology, 1965-68. Fotedar, D. N., Reader.

The detailed study on the morphology of Nematotaenia kashmiriensis, a common cestode of Buforiridis in Kashmir, has been undertaken. The life cycle and histomorphology of an oxyurid nematode has also been worked out and the rest of the work is in progress.

595.121

660.91 Uppal, Surinder Kumar. Studies in helminthology: Cestoda. Delhi, Zoology, 1964-68. Johri, L. N., Reader and Gupta, V. K., Reader.

595.121

661.92 Yadava, Ram Kumar. Morphology and life history of certain digenetic trematodes. Ravishankar, Zoology, 1966-69. Raj Narayan Singh, Principal, Govt. Arts & Science College, Durg.

A general survey of trematodes of reptiles has been completed. In addition to known genera and species of parasites in boa, two new species—one of Gogatea and the other of Echinostome are under study. The life cycle studies on schistosomes, strigeids and clinostomes are in progress.

595.122

Nematoidea

662.93 Ahmad, Mohd. Aftab. Studies on plant and soil nematodes of Andhra Pradesh and Kerala. Aligarh, Zoology, 1966-69. Khan, A. Basir, Professor and Head of the Department.

595.13

663.94 Bambroo, Neena. Studies on the helminth parasites of domestic animals in Kashmir. Jammu & Kashmir, Zoology, 1965-68. Fotedar, D. N., Reader.

Histomorphology and taxonomy of some known and new helminth parasites of sheep have been worked out. New species of nematode genera Chabertia, Haemonchus and Ostertagia and a new genera Neocooperia magniovata have been described. Work is in progress on the study of amphistomes of sheep and goat in Kashmir.

(1) On a new Trichostrongylid nematode from sheep in Kashmir. Kashmir Sci. 2(1-2); 1965: p. 136-141; and (2) On a new species of the nematode genus Chabertia railliet at henry, 1909, from sheep in Kashmir. Ind. Jour. Hel. 19(1); 1967.

595.13

664.95 Baqri, Qaiser Husain. Study of the nematodes associated with fibrous crops. Aligarh. Zoology, 1966-69. Jairajpuri, M. Shamim.

595.13

665.96 Bhamburkar, Bhanu Laxmanrao. Nematodes associated with orchard and ornamental plants around Delhi. I. A. R. I., Delhi, Entomology, 1960-67. S. K. Prasad, Nematologist.

Population of nematodes occurring in the rhizosphere of ten orchard and ten ornamental plants has been determined. One new genus and ten new species have been described. Rotylenchulus reniformis in association with nerium and Aphelenchoides sp. in association with 'doob' and maize have been recorded for the first time as internal parasite.

595.13

666.97 Derawar Singh. Morphological and histochemical studies of certain parasitic nematodes. Jodhpur, Zoology, 1965-68. Khera, S., Reader and Head of the Department.

The proposed work concerns the study of Dracunculus medinensis, which produces dracontiasis in man and is very common in the rural areas of Rajasthan causing tremendous hardship to peasants during rainy season. A better understanding of its chemical nature will help finding out its cure as well as its eradication.

595.13

667.98 Deshmukh, Prabhakar Gopalrao. Nematode parasites of vertebrates of Marathwada. Marathwada, Zoology, 1962-66. Syed Mehdi Ali, Professor and Head of the Department.

On a new species of saurositus. Jour. Hel. 39 (2-3): 1965 : p. 137-140.

595.13

668.99 Govindankutty, Aravallil Govindamenon. Studies on the interstitial microfauna of the south west coast of India with special reference to nematodes. Kerala, Marine Biology & Oceanography, 1963-66. Balakrishnan Nair, Narayana, Reader.

Interstitial fauna of the marine sands, with special reference to nematodes, has been studied on the basis of collections of organisms from four ecologically different stations on the south west coast of India. Ecological studies, such as, a detailed analysis of the physico-chemical and biological factors, seasonal incidence, vertical and horizontal distribution, breeding habits, effects of grain size on the fauna etc., are in progress.

595.13

669.100 Gupta, J. C. Studies on the biology and ecology of Hoplolaimus indicus sher, 1963 in the Panjab (Hoplolaimidae : nematoda). Punjab Agrl., Entomology, 1964-67. Atwal, A. S., Professor and Head of the Department.

The work is in progress on the population dynamics of the nematode Hoplolaimus indicus sher, 1963 in the field as well as in the laboratory in relation to soil temperature, soil moisture and soil pH. Life history of the nematode and its effect on the various citrus root stocks will also be studied.

595.13

670.101 Johnson, Sylvester. A general survey of nematode parasites of invertebrates of Rajasthan desert. *D. Sc.* Jodhpur, Zoology, 1965-69. Independently.

Work is being done on the biology and taxonomy of nematode parasites of invertebrates.

595.13

671.102 Kalyankar, S. D. Nematode parasites of fishes of India. Marathwada, Zoology, 1964-67. Syed Mehdi Ali, Professor and Head of the Department.

Many fishes of different species have been dissected and nematode parasites collected. Almost all mature forms have been collected mainly from the intestine of the fishes. Some of the species from the super family Filarioidea have also been collected from the body cavity of the fishes. Work on their taxonomy, drawing and measurement is being carried out.

595.13

672.103 Khera, S. On some aspects of soil and fresh water nematology. *D. Sc.* Jodhpur, Zoology, 1963-68. Independently

Work is being done on the ecology, systematics, culturing and development of fresh water and soil nematodes.

595.13

673.104 Lovekar, Chandrakant Devidasrao. Nematode parasites of mammals. Marathwada, Zoology, 1964-67. Syed Mehdi Ali, Professor and Head of the Department.

A systematic survey of the nematode parasites of mammals has been made, and many interesting nematodes have been found to infect the mammals in this region. The drawings, measurements etc., of these nematodes are being carried out.

595.13

674.105 Maheshwar, Meena Kumari. Studies on nematode parasites of insects and other arthropods. Osmania, Zoology, 1965-68. Narayan Rao, Pasumamula, Lecturer.

Work is being done on the morphology and taxonomy of adult nematode parasites belonging to the families Thelostomatidae, Oxyuridae and Rhigonematidae of insects Blattidae, Gryllidae and Scarabaeidae etc., and millipedes. Larval stages of certain nematodes of the groups Rhabditidae and Diplogasteridae have been reared and their detailed morphology is under study.

595.13

675.106 Mohd. Shakeel. Studies on plant parasitic nematodes of U. P. Aligarh, Zoology, 1965-68. Khan, A. Basir, Professor and Head of the Department.

595.13

676.107 Nama, Hari Singh. Survey of nematodes parasitising vegetable crops of West Rajasthan. *D. Sc.* Jodhpur, Zoology, 1966-69. n. g.

A systematic study of the nematodes parasitising the vegetable crops of West Rajasthan is being carried out with emphasis on the crops belonging to the families Solanaceae, Leguminosae and Cruciferae.

595.13

677.108 Sharma, Shanti. Studies on the taxonomy and biology of parasitic nematodes of some important crops of India. Aligarh, Zoology, 1965-68. Khan, A. Basir, Professor and Head of the Department.

595.13

678.109 Sunita Devi Singh. Studies on the morphology and systematics of plant and soil nematodes of Andhra Pradesh. Osmania, Zoology, 1965-67. Vanamala, Manohar Das, Lecturer.

Nematodes affecting plants especially those of economic importance, such as, paddy have been collected from various parts of Andhra Pradesh. Free living nematodes inhabiting soil have also been collected and their taxonomic studies are being carried out.

595.13

679.110 Suryawanshi, M. V. Nematode parasites of plants. Marathwada, Zoology, 1965-67. Syed Mehdi Ali, Professor and Head of the Department.

Nematodes have been collected from the roots and soil around the roots of more than 60 plants. Their processing has been completed and some interesting forms have been collected. The classification, identification, drawings and measurement work is being carried out.

595.13

680.111 Verma, Ram Sahahi. Studies on plant parasitic nematodes of cereals in U. P. Aligarh, Zoology, 1965-68. Khan, A. Basir, Professor and Head of the Department.

595.13

Polychaeta

681.112 Mathew, Joseph. On certain aspects of Echiuroids of Indian waters. B. I. T. S., Pilani, Zoology, 1965-67. Datta Gupta, A. K., Professor and Head of the Department.

595.174

682.113 Thomas, P. J. Biology of Polychaetes. Kerala, Marine Biology & Oceanography, 1963-66. Dinamani, Parameswara, Lecturer.

Over seventy species of Polychaetes have been collected at different stations over the continental shelf of Kerala. Taxonomic studies on the fauna have been completed. The detailed biology of three tubicolous polychaetes, Mesochaetopterus, Diopatra and Sabellaria is being worked out.

(1) Bull. Dept. Mar. Biol. Oceanogr. Uni. Kerala. 1 ; 1963 : p.29-34 ; and (2) Curr. Sci. 33 ; 1964 : p.754-755.

595.17

Arthropoda

683.114 Gopalakrishna Pillai, S. Studies on microarthropods of the monazite soil of Kerala. Kerala, Zoology, 1965-68. Nayar, K. K., Professor and Head of the Department.

Preliminary survey of soil inhabiting arthropods of the monazite belt has been made. A survey of the radiation intensity of the region has revealed a gradation in the N. W. direction and from beach to inland. Five experimental plots have also been established with, almost identical ecological features but with differing radiation intensity.

595.2

684.115 Kardar, Mohd. Abdul Hafeez. Studies on arthropod associated with some important crops. Aligarh, Zoology, 1966-69. Alam, S. M., Reader.

595.2

685.116 Karunakaran Nair, B. Reproductive physiology of arthropods. Kerala, Zoology, 1964-67. Nayar, K. K., Professor and Head of the Department.

The histology and some higrochemistry of the male genital tract, sexual dimorphism, sex ratio and androgenic gland of two crustaceans have been studied.

595.2

686.117 Naseema Begum, M. Studies on the blood of arthropods. Madras, Zoology, 1965-68. Krishnan, Ghenta, Professor.

Studies on the changes in the blood composition are expected to reflect the transformations taking place in the animal. A qualitative and quntitative estimation of proteins and amino acids in the blood and cuticle, and the effect of starvation and eyestalk removal, now under study, will show the relation between proteins and amino acids of the blood and cuticle.

595.2

687.118 Om Prakash Singh. Studies on the arthropods associated with the fibrous crops. Aligarh, Zoology, 1965-68. Alam, S. M., Reader.

595.2

688.119 Parvathy, Kesava Reddy. Studies on blood in relation to moulting in some arthropods. Madras, Zoology, 1964-67. Krishnan, Ghenta, Professor.

The relationship between stored carbohydrates in hepatopancreas, blood sugars and synthesis of chitin, which involves glucose, is being investigated. It is known from isotope studies that blood sugars are incorporated in the newly formed chitin. An exact quantitative determination of the sources and nature of the sugars involved in chitin formation is being carried out in Emerita asiatica and Ligia exotica.

595.2

Crustacea

689.120 Chacko, Susan. A comparative study of nervous system in Crustacea. Kerala, Marine Biology & Oceanography, 1962-67. Krishna Pillai, N., Research Officer.

Morphology of the central nervous system in eight representative types of crustaceans has been studied. Histological and experimental studies on the nervous system of Sphaeroma with reference to the various growth stages have also been done. An attempt will be made to determine whether salinity has any influence on the neurosecretory cells in Sphaeroma.

595.3

690.121 Gomez, Rita. Endocrine physiology of Crustacea. Kerala, Zoology, 1962-66. Nayar, K. K., Professor and Head of the Department.

Three major aspects of physiology have been studied in detail. First is the process of regeneration and second, a study of the hepatopancreas as a storage centre. Both these aspects are found to be under the direct influence of some of the neurosecretory centres and hence a detailed study of the cyclic changes in the neurosecretory centres along with changes in the hepatopancreas and regenerating limb has also been undertaken.

595.3

691.122 Krishna Pillai, Kunju Krishna. Studies on the reproductive biology of certain crustaceans of the south west coast of India. Kerala, Marine Biology & Oceanography, 1963-66. Balakrishnan Nair, Narayana, Reader.

The reproductive biology of 12 species of crabs and detailed investigations on the annual reproductive cycles of Uca annulips, Portunus pelagics, Metapenaeus affinis and Balanus amphitrite communis have been undertaken. The biochemical changes in various organs of these species in relation to their reproductive cycles have been followed.

595.3

692.123 Manmohan Singh. Studies on the integument of cirripedes. Madras, Zoology, 1963-67. Krishnan, Ghenta, Professor.

A study of the integument of the sessile, pelagic and parasitic cirripedes is being made to find the nature of modification in the organisation of the cuticle in relation to mode of life and environments.

595.35

693.124 Nayar, Gopalakrishnan. Studies on the egg membrane of crustaceans. Madras, Zoology, 1966-68. Krishnan, Ghenta, Professor.

A comparative study of the structure and composition of the egg membranes in different orders of Crustacea is being made.

595.3

694.125 Saraswathy Ammal, Gomathy Ammal. Comparative study of the digestive system in Crustacea. Kerala, Marine Biology & Oceanography, 1962-67. Krishna Pillai, N., Research Officer.

Gross anatomy of the digestive system of representative types has been studied. The structure of the gastric mill is found to have some relation to the existing classification of this order. Biochemistry of the digestive enzymes is under study.

595.3

695.126 Sharma, Suraj Prakash. Histological studies on the crustacean brain with particular reference to the descending nervous pathways. Panjab, Zoology, 1963-67. Satija, R. C., Reader.

The investigations on the crustacean brain have been undertaken to work out the detailed histology and to know something about the various types of cells met with in this group. Besides, the work on the descending nervous pathways from the brain to the central nerve cord is also in progress.

595.3

696.127 Shyamala, V. N. Fat metabolism in Crustacea. Baroda, Zoology, 1964-66. George, J. C., Professor and Head of the Department.

Studies have been carried out on the seasonal changes of certain metabolites and enzymes in the various tissues of the fresh water crabs. Certain changes in the physiological mechanisms of the animal have been observed before and after aestivation. Further studies are in progress regarding the various aspects of metabolism of the animal.

595.3

Copepoda

697.128 Navaneethakrishnan, Poovannan. Studies on cyclopoid copepods of Madurai. Madurai, Zoology, 1965-68. Krishnaswamy, S., Professor.

A survey has been conducted to ascertain the number of available species of copepods and to prepare a key for the identification of the species. As some of the species of copepods act as vectors of guinea-worm, it is proposed to study the role of the copepods and the host-parasitic relationships. Attempts are being made to locate the resting stages of copepods in natural and laboratory conditions. The development of the copepods is under study.

595.34

698.129 Sebastian, Moolail Joseph. Carcinology : Studies on copepods. Kerala, Marine Biology & Oceanography, 1966-69. Krishna Pillai, Research Officer.

It is proposed to undertake a detailed taxonomic survey of the copepod associates of invertebrates inhabiting Indian waters.

595.34

699.130 Shantha Kumari, P. Studies on plankton. Annamalai, Marine Biology, 1965-68. Seshaiya, R. V., Director, U. G. C. Centre for Marine Biology, Porto-Novo.

Qualitative and quantitative fluctuations of plankton and their interrelationships with physical and chemical factors have been studied. *The variations in N : P ratios in organisms and sea water and nutrient cycles in Porto-Novo waters have been investigated. Isolation and identification of planktonic organisms are* being carried out.

595.34

700.131 *Subbaraju, R. C.* Studies on planktonic organisms : *Copepod biology.* Annamalai, Marine Biology, 1964-66. Seshaiya, R. V., Director, U. G. C. Centre for *Marine Biology, Porto-Novo.*

Systematics of 60 species of locally occurring copepods and their seasonal abundance have been investigated. Post-embryonic development of Acartia erythraea, Pseudo serricandatus, and Tortanus forcipatus have been studied. Number of generations and generation time for six species of neritic copepods are being determined.

595.34

Eumalacostraca

701.132 Chockalingam, S. Studies on the nature and development of the integument of some decapod crustaceans. Madras. Zoology. 1963-67. Krishnan, Ghenta, Professor.

A comparative study of the cuticle of hermit-crab in the hardened and unhardened regions and an investigation of the causal factors, including the enzyme set up in the respective regions, have been made.

595.3844

702.133 Nagalakshmi, C. M. Histophysiological studies of the corpuscles of stannius in the fish notopterus. Annamalai, Zoology, 1964-67. Govindan, P., Professor and Head of the Department.

Histological and histochemical studies have been made on the corpuscles of stannius in the fish notopterus. The nature of endocrine secretion and its chemical composition have been investigated. Experimental studies related to the effect of hypertonic and hypotonic media and their bearing on the endocrine gland are under investigation.

595.384

703.134 Padmanabha Pillai, Rabindra Nath. Taxonomic study of the Amphipoda. Kerala, Marine Biology & Oceanography, 1963-67. Krishna Pillai, N., Research Officer.

A detailed taxonomic study of the littoral and pelagic amphipods of Indian waters has been conducted.

Nearly one hundred species have been identified. A large number of these are new records for the Indian seas and a few are new to science.

595.371

704.135 Shenoy, S. S. The studies on larval development in Anomura (Crustacea : Decapoda). Bombay, Taraporewala Marine Biological Research Station. Bombay, 1963-66. Kewalramani, H. G., Asstt. Director, Taraporewala Marine Biological Research Station, Bombay.

This study deals with the larval development of anomuran crabs, belonging to 15 species, based on laboratory hatchings to render authentic material. Larval keys have been formulated as an aid to identification of planktonic larvae. The work also elucidates some of the confusion in the adult taxonomy of this group.

595.3844

705.136 Vedavyasa Rao, P. Studies on the biology of certain Indian decapod crustaceans. Kerala, Central Marine Fisheries Research Institute, Mandapam. 1966-69. Jones, S., Director, Central Marine Fisheries Research Institute, Mandapam.

The commercial catches from backwater and marine environments have been sampled regularly along with the samples of plankton from these areas for investigating various biological aspects, including the early life-history of the important prawns of Cochin coast. Experiments on rearing of penaeid larvae under laboratory conditions and the analysis of data are in progress.

595.384

Arachnida

706.137 Bhat, Hari Raghuram. Bionomics of ixodid ticks. Poona, Virus Research Centre, Poona, 1963-66. Ramachandra Rao, T., Director, Virus Research Centre, Poona.

Life history, behaviour and microhabitat ecology of Haemaphysalis spinigera Neumann, 1897 (ixodoidea, ixodidae), an arthropod vector of Kyasanur Forest Disease Virus have been studied under natural as well as laboratory conditions in relation to the epidemiology of the Kyasanur Forest Disease.

595.42

707.138 Bradoo, Bhushan Lal. A study of spiders of the genus Stegodyphus with particular reference to their social biology and behaviour. Kerala, Zoology, 1964-68. Joseph, Kuttamathiathu Joseph, Reader.

The morphology and anatomy of social spiders, that have a direct bearing on their social biology, have been studied. Their biology and social behaviour with detailed study of feeding behaviour, nest and web construction, reproductive habits, life cycle, inter-attraction, intercommunication and association with other animals and other aspects of social life are being investigated.

595.44

708.139 Ramji, Ila Shivaji. Studies in the histophysiology of invertebrate tissues. Baroda, Zoology, 1965-67. George, J. C., Professor and Head of the Department.

Histological and histophysiological studies on various tissues of arachinds are being carried out. The significance of the presence of certain neurohormones and their influence on different organs is being studied.

595.4

Scorpions

709.140 Tembe, Vasant Bhaskar. Cytochemical studies in scorpions. Bombay, Institute of Science, 1965-67. Inamdar, N. B., Professor of Zoology.

Complete histology and cytochemistry of different tissues of scorpions are being worked out. Polyploidy in scorpions will also be investigated.

595.46

710.141 Thomas, T. Comparative anatomy and physiology of scorpions. Kerala, Mar Ivanios College, Trivandrum, 1962-67. Mathew, A. P., Professor of Zoology, Mar Ivanios College, Trivandrum.

The work comprises the comparative study of muscular, digestive, respiratory, circulatory, nervous and reproductive systems of the Scorpions—Heterometrus, Buthus, Lychas, Isometrus, Urodacus, Centruroides, Hadrurus etc., and also a comparative study of the physiological aspects of these systems.

595.46

711.142 Vyas, Arvindbhai Bhogilal. Certain morphological and histochemical aspects in scorpion musculature. Gujarat, Zoology, 1963-68. Dubale, M. S., Reader and Head of the Department.

The study of the musculature of the pedipalp of the scorpion palammeus is being carried out. It is revealed that in the absence of the extensor set of muscles for the protractory action of the chela, the corium, the arthroidal membrane and the arthrology of the segments play a significant role. Histochemical work has also been done.

595.46

Progoneata

Diplopoda

712.143 Dwarakanath, Siththu Kuppuregier. Studies on the millipedes of Madurai. Madurai, Zoology, 1964-67. Job, S. V., Reader.

The effect of temperature on the oxygen consumption in a few species of millipedes has been investigated with particular reference to size effect. Effects of sudden temperature change, starvation, food intake and growth rate, and anoxia on the increase or decrease of oxygen consumption, are being studied.

595.61

713.144 Subramonian Nadar, Thanumalaya Perumal Nadar. Studies on the fat body of millipedes. Madras, Zoology, 1965-69. Krishnan, Ghenta, Professor.

The structure and chemical nature of the fat body of millipedes are being studied.

595.61

Opisthogoneata

714.145 Changulani, V. D. Some aspects of the anatomy of the cephalic region of the centipede, Scolopendra morsitans Linn. Nagpur, Zoology, 1965-68. Jangi, B. S., Reader.

Some of the cephalic appendages, like antennae, have been studied in detail. The skeleton, myology, nervous system and sense organs will also be studied.

595.62

715.146 Kazi, Syed Salahuddin. Studies on the circulatory system and associated tissues of the centipede, Scolopendra amazonica Bucherl. Nagpur, Zoology, 1965-68. Jangi, B. S., Reader.

Anatomical investigation of the circulatory system is in progress. The activity of the heart, mechanism and course of circulation, physical and chemical properties of the haemolymph, pericardial cells, fat body and other associated tissues will also be studied in detail.

595.62

Insecta

716.147 Sirgur, Girish Anantacharya. Study of some of the Indian aquatic insects in relation to piscicultural practices. Bombay, Taraporewala Marine Biological Research Station, Bombay, 1964-67. Kewalramani, H. G., Asstt. Director, Taraporewala Marine Biological Research Station, Bombay.

It is a work on 14 species of aquatic insects, comprising 3 of Coleoptera, 5 of Odonata and 6 of

Hemiptera. Temperature tolerance and salt tolerance (constituents of sea water) studies form a basic comparison of physical and chemical factors for eradication, besides asphyxiation studies in relation to petroleum oil films and fumigation of bunds around fish nurseries with carbon disulphide. Chitinolytic activity in 5 larvicidal fishes has also been undertaken to determine the adaptive efficiency.

595.7

General Principles

717.148 Arumugham, Sannasi. Physiological and histochemical studies on the integument of social insects. Madras, Zoology, 1963-67. Krishnan, Ghenta, Professor.

It is known that castes in a colony of social insects are distinguished by certain morphological characteristics correlated with the different functions performed by them. The present study is designed to investigate the nature of the integument in the castes and its relation, if any, to the functions and mode of life of the castes.

595.7047

718.149 Bhalla, Kamal. Certain aspects of insect physiology. Delhi, Zoology, 1965-68. Saxena, K. N., Reader and Seshachar, B. R., Professor and Head of the Department.

595.701

719.150 Bhaskaran, K. K. Insect physiology. Annamalai, Zoology, 1963-67. Sriramulu, V., Reader.

The physiology of digestion and nutrition have been studied in Chrysocoris purpureus with special reference to localization of digestive enzymes in the different regions of the alimentary canal, and digestion and absorption of carbohydrates. The physiological effect of carbohydrates, amino acids and the nutritional endocrine regulation is being worked out with reference to reproduction.

595.701

720.151 Bhat, Krishna Murthy. Physiology of insect muscles and blood. Baroda, Zoology, 1965-67. George, J. C., Professor and Head of the Department.

Histochemical localizations of both free and bound lipids, glycogen, lipase, and succinic dehydrogenase have been studied in detail in various types of flight and leg muscles in insects. Glycogen, fat, and succinic dehydrogenase have also been quantitatively estimated in the flight and leg muscles of aquatic insects, like Belostoma—Hemiptera, Cybester—Dyticidae. and Hydrophyllus—Hydrophyllidae.

595.7018

721.152 Bhatt, Ram Sudhi. *Studies on the digestive system of certain insects in relation to insecticides.* Gorakhpur, Zoology, 1964-67. Chaudhry, Hari Shankar, Professor and Head of the Department.

Histocytological and histochemical studies of different parts of the digestive organs in M. nebulo, Dacus sp. and Dysdercus koenigii are in progress. Arsenicals and fluorides, as stomach poisons, and chlordane and lindane, as contact poisons, have been used to study their pathological effects. It is proposed to extend this study to other insects and insecticides.

595.7043

722.153 Bhunva, Shankar Prasad. *Effect of chemical mutagens on insect chromosomes.* Kalyani, Zoology, 1966-69. Manna, G. K., Head of the Department.

It is proposed to study the effects of some chemicals, belonging to the groups of quinone, alkylating agents, purine and pyrinidine analogues and some other radiomimetic chemicals on the dipteran salivary gland chromosomes.

Caryologia. 19(4) ; 1966.

595.708

723.154 Elayidom, N. Balakrishnan. *The cytology of grasshoppers and silkworms.* I. I. S., Bangalore, Biochemistry, 1963-67. Subramaniam, M. K., Asstt. Professor.

The behaviour of the chromosomes and the nucleoli during mitotic and meiotic divisions has been critically investigated in three grasshoppers and silkworms. The reactions of the grasshopper chromosomes to exposure to various chemical agencies have been analysed. The behaviour of the centrioles and the axial filaments during sperm formation in silkworms is found interesting.

595.708

724.155 Hema, P. *Some endocrinological aspects of insects.* Kerala, Zoology, 1965-69. Nayar, K. K., Professor and Head of the Department.

A surgically induced disturbance has been made in the neuroendocrinological equilibrium of the insect Periplaneta americana by cutting the recurrent nerve belonging to the autonomous nervous system. This has resulted in the formation of tumorous masses in the hepatic caecae, alimentary tract and the salivary receptacle. Histological studies of these formations are being carried out.

595.7014

725.156 Karnavar, Gopalakrishna. Studies in histophysiology. Baroda, Zoology, 1964-66. George, J. C., Professor *and Head of the Department.*

A histological and *histochemical* study of the fat body of certain insects is being carried out with special reference to the nature of the albuminoid globules, and the metabolism of fat during metamorphosis and diapause.

595.708

726.157 Mohd. Hashim. Studies on embryonic development of an insect pest. Aligarh, Zoology, 1966-68. Farooqi, M. Moin, Lecturer.

595.7033

727.158 Prem Chandra. Histopathological and cytopathological effect of insecticides on insects. Gorakhpur, Zoology, 1966-68. Chaudhry, Hari Shankar, Professor and Head of the Department.

Lindane, Chloradane and B. H. C. have been fed as also topically applied in measured doses to certain insects, such as, Laccotraphus, Rannatera and Mylabris. Their histo and cytopathological effect on the tissues of brain, blood, gut and malphigian tubules is under study. This work is proposed to be extended to other insecticides also to assess their comparative toxicity.

595.702

728.159 Seshan, K. R. Insect endocrinology. Kerala, Zoology, 1963-67. Nayar, K. K., Professor and Head of the Department.

Two components of neurosecretory material in the adult insect Iphita have been demonstrated and studied in relation to its different physiological activities. The neurosecretory system of the different ganglia have also been studied in relation to different physiological states.

595.7014

729.160 Sharma, Ravindra Nath. The study of insect resistance to insecticides, with special reference to the cyclodiens group of insecticides. Delhi, Zoology, 1962-67. Saxena, K. N., Reader.

595.702

730.161 Shree Devi, Nadipuram Rangaswamy. Effect of chemicals on insect chromosomes. Mysore, Zoology, 1964-67. Rajasekarasetty, M. R., Professor and Head of the Department.

Studies on the effect of hormones on male germ cells of Poekilocerus pictus have shown that higher doses and short time exposure damages both protein and nucleic moieties of the chromosomes. Upset of kinetochore, chromosome relationships, chromosome breakages, pycnosis and liquefaction have been noticed. Effects of small doses and long time exposure will also be studied.

595.701927

731.162 Srivastava, Jagdish Prasad. Histopathological studies on insects treated with certain poisons. Rajasthan, Zoology, 1964-67. Sexena, Suresh Chandra, Reader.

It is proposed to study the effects of certain insecticides on insects at tissue and cellular level. The insecticides have been applied in different ways and their mode of action on insects has been established. Histochemical investigations are in progress.

595.702

732.163 Subba Rao, G. Studies of histophysiology of the midgut in certain insects. B. I. T. S., Pilani, Zoology, 1964-67. Rastogi, Suresh Chandra, Lecturer.

Studies have been made on principal problems of insects, like their adaptation to different foods, nature of digestion and absorption of food materials, and the enzymes involved in these processes. These have helped a better understanding of digestion in insects to evolve better insect control measures through insecticides.

595.701

733.164 Varma, Ravindra. Studies on insect biochemistry. Allahabad, Home Science, 1964-68. Pant, Radha, Head of the Department.

The changes occurring during different developmental stages in certain insect pests, like Periplanata americana and Musca domestica with respect to various metabolites, are being studied.

595.701929

734.165 Zaidi, Zahir Sultana. Studies on the physiology of blood vascular system of certain insects. Aligarh, Zoology, 1966-69. Khan, Mumtaz A., Lecturer.

595.7011

Synaptera

735.166 Dasgupta, Sadhana. Collembola of Rajasthan. B. I. T. S., Pilani, Zoology, 1966-69. Mathur, S. N., Lecturer.

It is proposed to study morphotaxonomy of Collembola of Rajasthan. Collembola as a group constitute one of the most economically important group of soil micro arthropods and the studies on Collembola of Rajasthan will be a useful contribution towards the knowledge of soil animal populations.

595.71

736.167 Ramachandra Prabhoo, N. Studies on Collembola. Kerala. Zoology, 1959-66. Nayar, K. K., Professor and Head of the Department.

Taxonomy and ecology of Collembola have been studied. About 75 species have been determined from soil, bank and moss, which include 2 new genera, 13 new species, 4 new subspecies and new additions to Indian fauna. Characteristic species are seen in the 3 biotopes. Biology of Lepidocyrtus orenkalis has also been studied.

595.71

737.168 Roychaudhuri, Jyotiprakas. Systematics and bionomics of Onychiurus (Collembola: Insecta) of India. Kalyani, Zoology, 1966-69. Choudhuri, D. K., Lecturer.

595.71

738.169 Roy, Subrata. The role of edaphic factors on the distribution of subterranean collembolan micro fauna of West Bengal. Kalyani, Zoology, 1963-67. Choudhuri, D. K., Lecturer.

An analytical study has been made of the influence of moisture, pH, organic carbon, nitrate, phosphate, particle size and calcium carbonate on the distribution and population of Collembola of West Bengal.

(1) Rev. D' Ecol. et Biol. du Sol. 2(1) ; 1965 ; and (2) Proceedings of the Ist Latin American Congress on Soil Biology. 1965. p. 393-407.

595.71

Orthoptera

739.170 Abdul Rahiman, Mangalore. Chromosomal studies in natural populations of Orthoptera and the effects of chemicals on chromosomes. Mysore, Zoology, 1964-67. Rajasekarasetty, M. R., Professor and Head of the Department.

Evolutionary change involves the formation of individual with different genotypes. This in turn effect changes in the mendilian populations. Indian acridids are being studied on these lines. Population cytology of Locusta migratoria has been worked out in England and Japan. The Indian population of L. migratoria has been shown to be different. Different populations of Poecilocera picta have been shown to be different in their karyotypic complex. The changes in the meiotic behaviour are being studied using heat treatment.

595.72

740.171 Bhattacharjee, Tarit Kani. Cytological survey of thirty eight species of Grylloidea. Kalyani, Zoology, 1964-67.

Manna, G. K., Head of the Department.

The morphology and the behaviour of oogonial, spermatogonial and spermatocyte chromosomes have been studied of 38 species belonging to different families of Grylloidea. The result has been discussed as to the chromosomal evolution and the cytotaxonomical implication. The frequency of structural heterozygotes and supernumerary chromosomes of some species in different populations have also been studied.

Cytologia, 29(2) : p. 196-206.

595.726

741.172 Chaudhuri, Bamdeb. Comparative histological and histochemical studies of the effects on the gut cells of cockroach americana Linn. Calcutta. Zoology, 1962-67. Raychaudhuri, D. N., Reader.

595.722

742.173 Gururaj, M. Edward. Contributions to the population cytology of Indian Acridids. Mysore. Zoology, 1965-69. Rajasekarasetty, M. R., Professor and Head of the Department.

The population studies on the cytology of Chrotogonus oxyptarus have been worked out. Various anomalies like polyploidy, bivalent segregation, univalent formation, anaphase bridges, 'B' chromosomes and multivalent associations have been encountered. Cytological work on Gastrimargus africanus orientalies has revealed karyotypic mosaicism in possessing 23 and 19 chromosomes in the gonial metaphasic plate. Work on 20 individuals of Schistocerca gregaria collected from Bikaner is in progress.

595.726

743.174 Kr ına Mohan Singh. Effect of insecticides on the nerve impulses of Schistocerca gregaria Forsk. I. A. R. I., Delhi, Entomology. 1963-67. Pradhan, S., Head of the Division.

595.726

744.175 Kulkarni, Arun Pandurang. The effects of insecticides on amino acids in the haemolymph of Schistocerca gregaria F. I.A.R.I., Delhi, Entomology, 1965-68. Mehrotra, K. N., Insect Physiologist.

595.726

745.176 Paritala, Jagannadha Rao. Studies on olfactory attractants for Schistocerca gregaria. I. A. R. I., Delhi, Entomology, 1965-70. Mehrotra, K. N., Insect Physiologist.

Chemical isolation and identification of the attractants present in various plants has been undertaken.

595.726

746.177 Tuli, Saroj. Permeability of the cuticle of S. gregaria to chemicals. I. A. R. I., Delhi, Entomology, 1964-67. Mehrotra, K. N., Insect Physiologist.

Permeability studies with the intact integument of adult Schistocerca gregaria are being conducted using P-32 labelled malathion, phosphoric acid and unlabelled thiourea. The percentage of penetration of these compounds has been determined.

595.726

747.178 Vajraiah, Callukote Gurumurthappa. Contributions to the cytology of Orthoptera with special reference to tettrigids. Mysore, Zoology, 1964-67. Rajasekarasetty, M. R., Professor and Head of the Department.

The aberrant group, Tettrigidae is under study. As many as 15 species have been identified, and the chromosome studies are under way. Translocation heterozygosity of natural population of Periplanata americana in Mysore is shown to be different from that in Pakistan and British populations of the same species. Statistical analysis is under way.

595.72

748.179 Vasantha, S. Chromosome study in Indian gryllids. Mysore, Zoology, 1965-69. Bole Gowda, B. N., Reader.

The pattern of meiosis has been studied in three known species of gryllids as also in one unidentified form. The known species are Gryllopsis virgulata, Gryllodes sigillatus, and Scapsipedus sp. The Gryllopsis virgulata has 2n=19 as the chromosomal number in the male germ line whereas the corresponding number in the other two species is 2n=21. Though the meiotic pattern in the unidentified form is similar to that of the known species, it shows the presence [illegible] supernumerary chromosomes varying from 1 to 4 depending upon the degree of ploidy involved in the germ line cells. The frequency of occurrence of supernumerary chromosomes and polyploidy will be investigated.

595.726

Thysanoptera

749.180 Basalingappa, Sopanna. On termites (Isoptera—Insecta) from North Karnatak area. Karnatak, Zoology, 1964-67. George, C. J., Professor and Head of the Department.

595.736

750.181 Deo, Balkrishna Bapurao. Anatomy and physiology of the termite queen of an Indian termite species. Nagpur. Vidarbha Mahavidyalaya, Amravati, 1964-67. Deshpande, K. S., Professor and Head of the Department of

Zoology, Vidarbha Mahavidyalaya, Amravati and Rangneker, P. V., Professor and Head of the Department of Zoology, Institute of Science, Bombay.

The termite queen has been obtained in the living condition from its fort. Its anatomy has been studied with the help of binocular, microscopic permanent preparation and the examination of tissues of different organs. The cytochemical properties have been stressed. The physiology of the queen has also been studied with the help of spectrophotometer and colorimeter. The qualitative and quantitative analysis of the haemolymph and different tissues is being done with respect to the physiological importance of organic and inorganic substances.

595.736

751.182 Kalla, Natwar Raj. Studies on the morphology, cytochemistry and function of golgi complex and mitochondria in the sperm forming cells of certain selected animal species. Panjab, Zoology, 1965-68. Vishwa Nath, Professor Emeritus.

A study has been made of the cytochemical nature of cytoplasmic rganelles and their fate in the non-flagellate sperms of millipedes and nematodes. The structure and function of mitochondria and golgi apparatus in the spermatogenesis of different species of dragon flies belonging to different families have been studied. The spermatogenesis of human-louse will also be studied.

595.733

752.183 Kaul, P. M. Morphology and biology of termites (Isoptera). Delhi, Zoology, 1962-67. Vishnoi, H. S., Lecturer.

595.736

753.184 Maiti, Prabodhkumar. A conspectus of the termite fauna of West Bengal. Calcutta, Zoology, 1963-67. Raychaudhuri, D. N., Reader.

595.736

754.185 Narendra Bahadur Singh. Feeding behaviour and nutritional physiology of termites. Gorakhpur, Zoology, 1965-68. Krishna, Simili Srinivasan, Lecturer.

It is proposed to investigate the feeding habits and nutrition of termites to understand their physiological adaptation to the host material. Such a study, it is hoped, will pave the way for a better knowledge of termite biology and control.

595.736

Hemiptera

755.186 Aswathanarayana, N. V. Cytological studies of aquatic Heteroptera (Hemiptera) of Mysore. Mysore, Zoology, 1965-67. Independently.

Species of Gerridae and Notonectidae are being collected in and around Mysore city for cytological analysis. Present chromosomal studies will help establish cytological links among various species and general relationship of these families with other families of Heteroptera. It will also throw light on the chromosomal dynamics in natural populations.

595.754

756.187 Bhattacharya, Ajit. Cytological survey of fifty species of Homoptera. Kalyani, Zoology, 1964-67. Manna, G. K., Head of the Department.

The study deals with the cytological survey of spermatocyte chromosomes of fifty species of Homoptera.

595.752

757.188 Das, Kamal Kumar. On the morphological and biochemical nature of the stink glands of some Indian Heteroptera. Kalyani, Zoology, 1964-67. Choudhuri, D. K., Lecturer.

Morphological nature of the stink glands of some heteropterans, adults as well as juveniles, has been studied in detail and the chemical compounds responsible for their characteristic odour have been identified.

Ind. Jour. Ent. 27 ; 1965 ; p. 341-345.

595.754

758.189 Deshmukh, Usha. Studies on Indian Jassidae (Cicadellidae). I. A. R. I., Delhi, Entomology, 1963-67. Menon, M. G. R. D., Systematic Entomologist.

Jassids procured from various parts of the Indian Union are being studied with special reference to the subfamily Typhlocybinae. The Indian fauna so far on record has been found to require drastic revision and augmentation.

595.752

759.190 Gandhi, J. R. Studies on ingestion and utilisation of food in certain hemipterous insects. Delhi, Zoology, 1965-68. Saxena, K. N., Reader.

595.75

760.191 Goel, Suresh Chandra. Studies on the thorax of Hemiptera (Heteroptera) and their bearing on systematics. B.I.T.S., Pilani, Zoology, 1965-67. Dattagupta, Anil Kumar, Professor and Head of the Department.

A comprehensive study of the thoracic sclerites, the wings and the legs of forty eight species has been undertaken to assess these structures in explaining the interrelationships and phylogeny of different families in Geocorisae. Many structures, hitherto undescribed, would be discussed.

Jour. Bombay Nat. Hist. Soc. 63(1):1966:p.214-215.

595.754

761.192 Janardan Singh. Morphology, anatomy, bionomics and population density of some diplurans. Banaras, Agriculture, 1965-67. Mukherjee, S. P., Reader.

Campodea, Ana-japyx, Japyx sp. etc., have been chosen for a detailed study of the morphology and anatomy of diplurans.

595.75

762.193 Mandaravally Kartha, M. Biochemical embroylogy of Sphaerodema molestum (Duf.). Annamalai, Zoology, 1962-66. Govindan, P., Professor and Head of the Department.

The histomorphology and biochemistry of Sphaerodema molestum, an aquatic hemipteran bug, have been studied with special reference to respiratory metabolism, and changes in the chemical constituents. amino acids and phosphorus compounds during embryogenesis to follow the bioenergetics of development.

595.754

763.194 Manickavachakan, R. Experimental studies on the corpus allatum of the insect with special reference to the physiology of the reproduction. Annamalai, Zoology, 1965-68. Sriramulu, V., Reader.

Experimental studies in the hemipteran plant bug, Chrysocoris purpureus, related to allatectomy and ovariectomy, are being made to follow the behavioural changes in the insects

595.754

764.195 Narula, S. C. On the activity and abundance of certain hemipterans. B. I. T. S., Pilani, Zoology, 1965-68. Kundu, H. L., Asstt. Professor.

The research deals with the continuous trapping of insects at night by means of light traps stationed at different places. Out of all the species that visit the traps, the following 8 species are being studied intensively: (1) Nezera antennata Scott., (2) Reduvius ciliatus B. Jac., (3) Carbula insocia Walk., (4) Cydnus nigritus Fabr., (5) C. tridicus Westw., (6) Dorpius indicus Dist., (7) Akbaratus fasciatus Dist., and (8) Bagrada picta Fabr.

595.75

765.196 Pathak, Pradyumna Kumar. Studies on Indian Miridae (Heteroptera : Hemiptera). I. A. R. I., Delhi, Entomology, 1964-67. Menon, M. G. R. D., Systematic Entomologist.

Mirids procured from various parts of the Indian Union are being studied. The Indian fauna so far on record has been found to require drastic revision and augmentation.

595.754

766.197 Ray, Pranab. Life history, seasonal activity and chemical control of mustard, Aphid lipaphir crysimi, in West Bengal. Calcutta, Zoology, 1961-67. Banerjee, J. N.

595.752

767.198 Surlikar, V. V. Studies on some Heteroptera found in the grain godown. Bombay, Institute of Science, 1961-67. Tembe, V. B., Assoc. Professor of Zoology.

The study of the following three predator bugs has been undertaken: (1) Amphiboloas venetor (Klug.)., (2) Peregrenater biannulipes (Montr.), and (3) Xylocoris flavipes (Reut.). The first two species belong to the family Reduviidae while the third belongs to the family Anthocoridae. Anatomy and histology of A. venetor has been studied while a study of its bionomics, including observations on the life history, ovipositon, longevity etc., and the correlation between various body measurements is in progress. A comparative study of the anatomy of P. biannulipes, A. venetor and X. flavipes will also be undertaken.

595.754

Coleoptera

768.199 Gokhale, Vijaykumar Gangadhar. Nutritional studies on Callosobruchus maculatus F. (Coleoptera: Bruchidae). Udaipur, Agri. Entomology, 1965-67. Srivastava, B. K., Director, Agricultural Experiment Station, Udaipur.

The experimental insect is a serious oligophagous pest of stored pulses in India. It has been reported that certain glycosides—saponins—are detrimental to its growth. The present studies have been undertaken to determine its nutritional requirements of amino acids, fats, and sterols, vitamins, carbohydrates and other growth promoting and growth hindering substances.

595.76

769.200 Gopinath, Kunnath. Studies on the ambrosia beetle, Xyleborus morstatti Hagedorn (Coleoptera : Scolytidae). Mysore, Zoology, 1963-67. Rajasekarasetty, M. R., Professor and Head of the Department.

The natural history of the ambrosia beetle, including taxonomic status, distribution in India and other parts of the world, external morphology of adult and immature stages, internal anatomy, biology and bionomics, biological and ecological relationships (with symbiosis) and population dynamics is under investigation.

595.76

770.201 Jakhar, Om Prakash. A study of certain coleopteran pests of a semi arid zone of Rajasthan with the help of various light traps. B. I. T. S., Pilani, Zoology, 1964-67. Kundu, H. L., Asstt. Professor.

It is proposed to analyse the influence of weather conditions on the activity of certain destructive coleopterans and the possible estimation and forecasting of changes in the population of these species which may be helpful to bring about their effective control.

595.76

771.202 Kaushal Kumar. A study of the feeding habits, morphology and physiology of the digestive organs of some phytophagous insects and their control. Gorakhpur, Zoology, 1966-68. Shukla, Ganga Saran, Reader.

Morphology, histology and digestive physiology of the alimentary canal of Mylabris pustulata (Thumb) and Aulacophora foveicollis (Lucas) will be studied. As these insects are the major pests of malvaceous and cucurbitaceous plants, a study of their control measures will also be undertaken.

595.76

772.203 Lahiri Mandira. A cytological survey of coleopteran insects. Kalyani, Zoology, 1966-69. Manna, G. K., Head of the Department.

It is proposed to study the morphology and behaviour of oogonial, spermatogonial and spermatocyte chromosomes of various species belonging to different families of Coleoptera.

595.76

773.204 Mathur, Shyam Lal. Studies on the anobiid beetles infesting stored cumin. Udaipur, Agrl. Entomology, 1965-67. Srivastava, B. K., Director, Agricultural Experiment Station, Udaipur.

The comparative biology of the anobiid beetles infesting stored cumin viz. Lasioderma serricorne F. and Stegobium paniceum L. has been studied. The studies on reproduction in different ecological conditions are in progress. The efficacy of various fumigants will be investigated with particular reference to the changes in the biology of the pests surviving fumigation.

595.76

774.205 Mundi, Sushilakumari. Coccinellid beetles of the tribe scymnini predating upon aphids and scale insects in India. Calcutta, Zoology, 1965-68. Kapur, A. P.

595.76

775.206 Rama Krishna. M. Morphotaxonomic studies on the genitalia of certain aquatic Coleoptera. B. I. T. S., Pilani, Zoology, 1964-67. Datta Gupta, A. K., Professor and Head of the Department.

A detailed histological study has been made of the internal genitalia of the three families of Coleoptera, viz. Dytiscidae, Hydrophilidae and Gyrinidae. Morphology of the genitalia and certain other characters important for sexual dimorphism will be assessed to determine the interrelationships between these families.

595.76

776.207 Samant, Tripurari Saran. Studies on the detailed morphology of the Indian dung-beetle, Heliocopus bucephalus. Gorakhpur, Zoology, 1964-67. Shukla, Ganga Saran, Reader.

595.764

777.208 Vazirani, Tahil Gianchand. A contribution to the systematics of aquatic beetles from India. Bombay. Zoological Survey of India. Calcutta, 1965-68. Mani, M. S., Asstt. Director, Zoological Survey of India, Calcutta.

The systematics of water beetles belonging to the families Amphizoidae, Haliplidae, Dytiscidae excluding Colymbetinae, and some species of Gyrinidae are under study. The studies have mostly been based on male genitalia.

595.76

778.209 Venkatesh Iyer. Honaganahally Anantha Iyer. Contribution to the cytology of Indian Coleoptera. Mysore, Zoology, 1964-67. Rajasekarasetty. M. R., Professor and Head of the Department.

Several species of Chrysomelidae and Curculionidae are being studied to determine the normal meiotic behaviour of chromosomes, sex determining mechanisms and occurrence of supernumerary chromosomes. Differential staining properties and the possible cytotaxonomic trends will also be investigated.

595.76

Diptera

779.210 Chatterjee. Kamalesh. Cytological survey of salivary gland chromosomes of Drosophila sp. Kalyani, Zoology, 1963-67. Manna, G. K., Head of the Department

A cytological survey of salivary gland chromosomes of Drosophila sp. has been undertaken. It will include cytological salivary chromosome mapping, frequency of heterozygotes in 23 different east Indian populations, qualitative study of natural heterozygotes, and the study of asynapsis in the salivary chromosomes of different populations.

Nucleus. 6(2) : p. 121-134.

595.771

780.211 Farooqi, Shamsul Islam. Taxonomic studies on the Indian Pteromalidae with regard to the utility of a few important species in biological control of insect pests. Aligarh, Zoology, 1965-68. Alam, S. M., Reader and Subba Rao, B. R.

595.77

781.212 Gopalan, H. N. B. Studies on the salivary gland chromosomes of some dipteran flies. Delhi, Zoology, 1964-68. Seshachar, B. R., Professor and Head of the Department and Dass, C. M. S., Professor.

595.77

782.213 Grover, Krishan Kumar. Cytology and cytotaxonomy of Culex fatigans complex and effects of chemosterilants. Delhi, Zoology, 1966-69. Dass, C. M. S., Professor.

595.771

783.214 Hati, Amiyakumar. Biotic factors affecting the life cycle and longevity of some culicine mosquitoes. Calcutta, Medicine, 1964-67. Ghosh, Sudhindra Mohan, Professor of General Surgery, Calcutta Medical College, Calcutta.

595.771

784.215 Kazmi, Sibte Jafar. Genetic studies on Aedes Aegypti. Aligarh, Zoology. 1966-69. Adhami, Osman M., Lecturer.

595.771

785.216 Khan, Mahafooz Hasan. Genetical studies on Aedes Aegypti. Aligarh, Zoology, 1965-68. Adhami, Osman M., Lecturer.

595.771

786.217 Kurian, I. N. Studies on the development and inheritance of insecticide resistance in Musca domestics nobule and M. domestica vivina with special reference to B. H. C. Aligarh, Zoology. 1965-68. Khan, N. H., Reader.

595.774

787.218 Manjeet Kaur. Morphology and biology of a dipterous parasite. Aligarh, Zoology, 1966-69. Alam, S. M., Reader.

595.77

788.219 Rahman, Sayed Md. Zeyaur. Studies on the salivary gland chromosomes of Drosophila Malerkotliana. Bhagalpur, Zoology, 1966-68. Jha, Anirudh Prasad, Lecturer.

It is proposed to study the genetic composition of natural populations of Drosophila malerkotliana, and the analysis of genetic polymorphism therein. by virtue of incidence of inversions of blocks of genes through the preparation of a reference map of the salivary gland chromosomes of these species.

595.771

789.220 Rajeshwari, P. Contributions to the cytotaxonomy and genetics of the drosophilids of South India. Mysore, Zoology, 1966-68. Krishna Murthy, N. B., Reader.

Various species of Drosophila of Mysore State and other parts of South India have been collected and their cytotaxonomic and genetic studies undertaken. The chromosomal polymorphism and isolation mechanisms involved in various strains of Drosophila ananassae, collected from various parts of Mysore State and a few parts of Madras and Kerala, will be studied in detail.

595.771

790.221 Ramalingam. N. Histochemical and biochemical studies on ovarian development in relation to corpus allatum in Chrysomyia megacephala, Family: Calliphoridae. Annamalai, Zoology, 1963-67. Govindan, P., Professor and Head of the Department.

Histological studies have been made on the corpus allatum and medial neurosecretory cells in relation to ovarian development. Histochemical localization of nucleic acids, proteins, PAS substances and lipids has also been studied in different stages of oocyte growth.

595.77

791.222 Sharma, Vishwa Nath. Morphological and cytochemical studies on the gametogenesis of Diptera. Panjab, Zoology, 1963-67. Vishwa Nath, Professor Emeritus.

The morphology of both male and female gametes has been studied during gametogenesis in five dipteran species viz., Drosophila melanogaster, Musca domestica, Dacus cucurbitae, Psychoda bengalensis and Culex fatigans. The detailed cytochemical studies of gametes in these species are in progress.

Naturwiss. 53: 1966 : p. 389.

595.77

792.223 Shukla, Purushottam Trimbak. Mutation rate studies in Drosophila and other organisms. I. A. R. I., Delhi, Botany, 1966-69. Jain, H. K., Head of the Division.

It is proposed to study the rates of mutations of a number of known genes in Drosophila and other organisms, following treatment with different mutagens. Some of the mutagens proposed to be used are known to be specific in reacting with particular bases of the DNA molecule. Triticum labelled precursors of DNA will also be used for the induction of mutations. The study will help analyse the relationship between the chemical structure of a gene and its sensitivity to different mutagens.

595.771

Lepidoptera

793.224 Agarwal, Harish Chandra. Studies on the life history and certain aspects of nutrition of the cauliflower moth, Prodenia litura. Vikram, Zoology, 1964-68. Jagdish Bahadur, Lecturer.

595.78

794.225 Bhattacharjee, Nirmal Shib. Taxonomic studies on Indian Pyralidae. I. A. R. I., Delhi, Entomology, 1965-69. Menon, M. G. R. D., Systematic Entomologist.

Pyralids procured from various parts of the Indian Union are being studied. The Indian fauna so far on record has been found to require drastic taxonomic and nomenclatural revision.

595.78

795.226 Bibhooti Prasad. Studies on the feeding behaviour and utilisation of food in certain sugarcane borers. Gorakhpur, Zoology, 1964-67. Shukla, Ganga Saran, Reader.

The mouth parts, and the morphology and histology of the alimentary canal, in both the fed and starved conditions, of Emmalocera depressella Swin. and Scirpophaga nivella Fabr, larvae have been studied. Studies on the rate of passage of food, hydrogen ion concentration of the various parts of the gut, and the fate of carbohydrates and the enzymes are in progress.

595.78

796.227 Chakraborty, Sanjib. Studies on rice field insect pests : Bionomics, morphology and ecology of the major insect pests of rice in West Bengal. Kalyani, Entomology, 1964-67. Sen, P., Research Professor.

The bionomics of Tryporyza incertulas, Chilo partellus, Sesamia inferens and Hispa armigera have been investigated. The correlation of seasonal population fluctuations of different stages with climatic, edaphic and biotic factors has been worked out. Certain parasites of eggs, larvae, and pupae of borers have also been determined and their varietal differences in borer attack reviewed.

595.78

797.228 Chitra, Chellam Iyengar. The silkworm physiology and biochemistry. I. I. S., Bangalore, Fermentation Technology Laboratory, 1966-70. Bhat, J. V., Professor and Shyamala, M. B.

The biochemical studies have been undertaken on the silkworm, Bombyx mori L. with particular reference to metabolism of silicon, intestinal absorption of amino acids and their interaction, using labelled compounds, and the role of amino acids in the osmoregulation.

595.78

798.229 Harsh Nath Singh. Esterases during the post embryonic development of Chilo zonellus. I. A. R. I., Delhi, Entomology, 1963-67. Mehrotra, K. N., Insect Physiologist.

The presence of esterases during the post embryonic development of Chilo zonellus has been demonstrated and a number of them have been distinguished by their substrate affinity and inhibitability by organophosphates, viz. DFP and paraoxon.

595.78

799.230 Lacy, Priti Sheila. Studies on insect biochemistry. Allahabad, Home Science, 1964-67. Pant, Radha, Head of the Department.

A study of changes involved in the variation of phosphorus compounds, reducing substances, proteins, carbohydrates and amino acids during development of the eri silkworm, Philosamia ricini, is in progress.

Ind. Jour. Exp. Biol. 3(4) ; 1965 : p. 274-275.

595.78

800.231 Maqbool Ahsan. Studies on silkworm in relation to its behaviour of feeding and the mode of digestion of food. Aligarh, Zoology, 1966-69. Khan, Mumtaz A., Lecturer and Krishnaswami, S., Director, Sericulture Research Station, Berhampore.

595.78

801.232 Pandey, Shambhoo Narain. Studies on the bionomics, outbreaks and ecology of Prodenia litura (Noctuidae : Lepidoptera) Udaipur. Agrl. Entomology, 1965-67. Srivastava, R. P., Taxonomist, Agricultural Experiment Station, Udaipur.

A comparative study of the bionomics of Prodenia litura F. will be made under different climatic conditions. Effect of agro-climatic factors on its distribution and abundance, as also its different phases will be studied in detail. The probable causes and nature of its outbreaks will also be investigated.

595.78

802.233 Ravi Rao, Udyavar. Biochemical investigations on the silkworm, B. mori L. I. I. S., Bangalore, Fermentation Technology Laboratory, 1964-67. Bhat, J. V., Professor and Shyamala, M. B.

The metabolism of saturated -1-14c labelled fatty acids in the silkwom, Bombyx mori L. has been studied. The absorption mechanism of the intestinal transport of fatty acids and triglyceride is being investigated. Enzyme studies relating to the nature of hippuricase and amino-acylase in the silkworm will also be done.

Biochem. Jour. 98(1) ; 1966 : p. 260-265.

595.78

803.234 Sharma, Satish Chandra. Studies on insect biochemistry. Allahabad, Home Science, 1964-67. Pant, Radha, *Head of the Department.*

A study of the changes occurring in the level of citrates, proteins, uric acid, amino acides, reducing substances and phosphorus compounds during different developmental stages of the eri silkworm, Philosamia ricini, is in progress.

(1) Ind. Jour. Exp. Biol. 3 ; 1965 : p. 275 ; and (2) Ann. Ent. Soc. 60 ; 1967 : p.170

595.78

Hymenoptera

804.235 Abdurahiman, Ullatan Chalil. The biology and morphology of some fig insects from Kerala. Kerala, Zoology, 1965-69. Joseph, Kuttamathiathu Joseph, Reader.

The work comprises morphology and biology of the fig chalcids that inhabit the Ficus receptacles. Under morphology, the external and internal anatomy have been studied in detail, while the biological studies deal with the eclosion, reproductive behaviour, oviposition, life history, ecology and the biological relationships between the different fig insects inhabiting the same receptacle.

595.79

805.236 Bandyopadhyay, Tara Charan. Certain aspects of the abundance and activities of some hymenopterans. B.I.T.S., Pilani, Zoology, 1966-70. Kundu, *H. L.*, Asstt. Professor.

The activity and abundance of eight species of hymenopterans are being studied with the help of light traps.

595.79

806.237 Bogawat, Jatan Kumari. Nutritional and host preference studies in Athalia proxima Klug (Hymenoptera : Tenthridinidae). Udaipur, Agrl. Entomology, 1965-68. Srivastava, B. K., Director, Agricultural Experiment Station, Udaipur.

Chemical attractants which make these insects thrive on specific plants are being studied. Chemical analysis of both the plants and insects will be done, for both free and bound amino acids, to assess their requirements. Techniques will be developed to raise the cultures of this insect on artificial diet to ascertain its nutritional requirements.

595.79

807.238 Jonathan, J. K. Taxonomy and distribution of Indian Ichneumonidae with special reference to Gelinae. Delhi, Zoology, 1965-68, Gupta, V. K., Reader.

595.79

808.239 Mohd. Hayat. Taxonomy of parasitic Hymenoptera belonging to the super family Chalcididae with observations on the biology of the commoner species of parasites. Aligarh, Zoology, 1965-68. Alam, S. M., Reader.

595.79

809.240 Shafi, Sheikh Adam. Taxonomy of Chalcido lead with observations on the biology of the commoner species of parasites. Aligarh, Zoology, 1966-69. Alam, S. M., Reader.

595.79

810.241 Tikar, D. T. Taxonomy and distribution of Indian Ichneumonidae with special reference to Ephialtinae. Delhi, Zoology, 1965-68. Gupta, V.K., Reader.

595.79

Vertebrates

General Principles

811.242 Chattopadhyay, Sankar. A study of the vertebrate fauna from the Upper Malari formation. Calcutta, Zoology, 1964-67. Chaudhuri, Tapan Ray.

596.09

812.243 Cherian, K.M. Studies in the structure and physiology of vertebrate muscle and blood. Baroda, Zoology, 1963-67. George, J.C., Professor and Head of the Department.

Changes in the various metabolites and the related enzymes in the breast muscle and in the blood of pigeons with induced atrophy, and in the muscle biopsy samples of human muscular dystrophy patients are being studied histophysiologically to understand and characterize the various changes occurring in the disease.

(1) Jour. Histochem. Cytochem. 12;1964 : p.721-728 ; and (2) ibid. 13;1965 : p.265-269.

596.018

813.244 Desai, Arvind Kalyanji. Histophysiological studies on vertebrate tissues. Baroda, Zoology, 1963-67. George, J.C., Professor and Head of the Department.

Histophysiological studies of alimentary canal and associated organs of both the migratory and non-migratory fishes have been done in relation to maturation and migration. Histological studies of corpuscles of stannius, ultimobranchial body and catecholeamine secretory cells in the heart of these fishes have also been undertaken.

596.08

814.245 Gupta, Govind Lal. Comparative study of the effect of irradiation on the liver of certain vertebrates. Rajasthan, Zoology, 1966-69. Srivastava, Pratap Narain, Reader.

Radiobiological effects of various radioisotopes, like Co-60, Ca-45 and P-32 on the liver of fish, amphibia, reptiles, birds and mammals are being studied histologically, histopathologically and histochemically to establish factors underlying differential radiosensitivity. Autoradiographic and chromatographic methods will also be used in this study.

596.01915

815.246 Kasodekar, Pandharinath Keshav. Studies on phosphatases in vertebrate kidney. Shivaji, Zoology, 1966-68. Kamat, D.N., Head of the Department.

The vertebrate kidney performs the function of excretion and osmoregulation for which various physiological means are adopted. No specific work has been done to elucidate the relationship of histochemical nature and physiological role of the vertebrate kidney. Hence the studies on different vertebrate kidneys have been undertaken to find out the relation between alkaline phosphatases and the problems of diverse ecological localities. This will be done by histochemical and electrophoretic methods.

596.014

816.247 Naik, Yashvantrai Maganlal. Histophysiological studies on vertebrate tissues. Baroda, Zoology, 1963-67. George, J. C., Professor and Head of the Department.

The mammalian diaphragm has been studied histochemically, and the fat and enzymes, like alkaline phosphatase, acid phosphatase, lipase, cholinesterase and succinic dehydrogenase have been studied to correlate the cellular organisation of the diaphragm with the body size and respiratory rate. Succinic dehydrogenase and glycogen have also been quantitatively studied under the effect of exercise.

Histochemical demonstration of alkaline phosphatase in mammalian diaphragm. Jour. Anim. Morphol. Physiol. 12(1) ; June '65 : p. 81-84.

596.08

817.248 Raman, Thailam. Histochemical studies on the adrenal medullary cells of the vertebrates. Shivaji, Zoology, 1966-68. Kamat, D. N., Head of the Department.

Adrenals have been observed to produce both non-adrenaline and adrenaline and both these cells, which differ histochemically in terms of esterases, may be present in their medulla. Cholinesterases acid phosphatase and adenosine triphosphatase's reactivity to potassium iodate, chromaffin reaction and fluorescence in ultraviolet light, and alkaline phosphatase activity of medulla during secretion can be demonstrated with strychnine stimulation. This will be studied comparatively in adrenal medulla of different vertebrates and their evolutionary significance investigated.

596.08

Anamnia

General Principles

818.249 Bhusari, B. V. Fishery and biology of four important sciaenids of Ratnagiri. Bombay, Taraporewala Marine Biological Research Station, Bombay, 1962-67. Kulkarni, C. V., Director, Taraporewala Marine Biological Research Station, Bombay.

A comparative study of Pseudosciaena sina, P. aneus, P. axillaris and Johnious dussumieri is envisaged with particular emphasis on (i) the morphology of air bladder, vertebral column and alimentary canal, (ii) food and feeding habits of juveniles and adults, (iii) length-weight relationship and length frequency distribution, (iv) fecundity, maturation and spawning, and (v) morphometric features from viewpoint of raciation.

597.01

819.250 Chandran, M. R. Reproductive and nutritional cycles in a few fishes. Madurai, Zoology, 1965-68. Krishnaswamy, S., Professor.

Reproductive and nutritional cycles of Psammoperca waigaiensis have been determined and the biochemical changes in the gonad and storage organs followed every month. The changes in the feeding habits and of the amount of adipose tissues attached to the gonad are correlated to the reproductive cycle. Environmental influence on reproduction is being examined.

597.05

820.251 Christian, Evangelina Govindlal. Myology of fishes. Gujarat, Zoology, 1963-67. Dubale, M. S., Reader and Head of the Department.

With the varied types of locomotory habits in fishes, it has been observed that the organs of locomotion show a considerable diversity in form and structure. The skeletal elements of the paired fins and the muscles operating them have been studied in fifteen species of fresh water fishes. An attempt is being made to correlate the anatomical variations in the skeleton and musculature of the paired fins with the mode of locomotion in these fishes.

597.047

821.252 C. P. Singh. Studies on the food, feeding habits and digestive tracts of a few fishes and their possible correlation with olfactory and gustatory senses. Jodhpur, Zoology, 1966-69. Kapoor, B. G., Lecturer.

The anatomy and histology of the digestive tracts of a few fishes and their correlation with the structure of olfactory organs, skin, barbels and gill rakers are under study. The possible correlation of brain pattern, hind brain, with the different modes of feeding habits will also be investigated.

597.04

822.253 Daftari, Shibni. Comparative studies on the pituitary of Kashmir fishes. Jammu & Kashmir, Zoology, 1964-68. Das, S. M., Professor and Head of the Department.

The comparative study on location and morphology of the pituitary of ten Kashmir fishes has been completed. Histology and histochemistry of the pituitary of these fishes has also been tackled. Extraction of pituitary gland, trituration and preservation of the extracts is being completed. The injection of immature and hypophysectomized fishes, will also be done with the help of hormones and preserved pituitary gland extracts.

On the gross anatomy, size, shape and position of the pituitary gland in three Kashmir fishes. (with S. M. Das). Kashmir Sci. 2 ; 1965

597.044

823.254 Das, Chittaranjan. A study on the food, digestive system and feeding habits of some fresh water commercially important fishes of West Bengal. Visva-Bharati, Zoology, 1964-67. Sarkar, H., Head of the Department.

Twenty six specimens of different ecological niche have been selected for the study of digestive system, gut contents, food and feeding habits, and the possible correlation between digestive system, food and feeding habits.

597.043

824.255 Desai, Kiran Mukundrai. Studies on neuroendocrine systems of vertebrates. Baroda, Zoology, 1963-67. George, J. C., Professor and Head of the Department.

The histological and histophysiological studies of hypothalamo-hypophyseal neurosecretory system and of caudal neurosecretory system of anadromous migratory and non-migratory fish have been done in relation to maturity and migration. The histology of the pituitary gland, interrenal glands and of the thyroid follicles has been carried out in these fishes with regard to migration and sexual maturity.

597.014

825.256 Govindarajulu, Peranaidu. Neuroendocrine control of reproduction in a fish. Madurai, Zoology, 1964-67. Krishnaswamy, S., Professor.

The influence of nervous and endocrine factors which affect the reproductive cycle in the fish, Tilapia mossombica, is being investigated. These factors have been studied with particular reference to testosterone propionate ostradiol benozote, extract of the pituitary gland and illumination on the gonads as well as on the pituitary gland.

597.016

826.257 Gurumani, N. Studies on the pancreatic tissue of selected representatives of family of fresh water fishes. Annamalai, Zoology, 1965-69. Govindan, P., Professor and Head of the Department.

The histology, histochemistry and secretory cycle of the exocrine and endocrine pancreas are being studied. The effects of insulin, cobalt chloride, glucose and glycogen on blood sugar level will be investigated. The changes in the islets of Langerhans, interrenals and pituitary will also be worked out.

597.08

827.258 Haidar, Mohammad Haseen Uddin. Studies on certain endocrine glands of fishes in relation to reproduction. Gorakhpur, Zoology, 1966-68. Chaudhry, Hari Shankar, Professor and Head of the Department.

Histomorphology of thyroid gland of Notopterus, Mystus, Nandus, and Xenantodon has been studied. The histochemistry and cytology of the gland are being studied. Seasonal variations in the thyroid and gonads of Mystus and Nandus are also being studied to establish their relationship. Studies on the effect of drugs on the thyroid and their consequences on the gonads are also planned.

597.044

828.259 Indra, D. Juliet. Histochemical, cytological and biochemical studies in enzyme localisation. Madras, Biochemistry, 1965-68. Shanmugasundaram, E. R. B., Professor.

The relationship between tryptophan and niacin has been studied in Tilapia mossambica. It is proved that pyridoxine plays a major role in the conversion of tryptophan to niacin in the fish and that pyridoxine and thiamine deficient tilapians have a greatly reduced ability to convert the amino acid to nicotinic acid. An attempt has also been made to study the activities of various enzymes of Citric acid cycle in normal and glucose treated fish, T. mossambica, by Warburg manometric techniques. The activities of succinic oxidase, citric dehydrogenase, malic dehydrogenase and fumarase are seen to be more in the glucose treated fish than in the normal ones.

597.01925

829.260 Janak Dulari. Studies on scales, age and growth of Kashmir fishes. Jammu & Kashmir, Zoology, 1964-67. Das, S. M., Professor and Head of the Department.

Studies on scales have revealed annuli or annual rings in all Kashmir fishes. That these are annual rings, have been confirmed by further studies on otolith, vertebrae, and opercula. These studies will help determine the age and growth of fishes, so necessary for fisheries development and fish production.

Comparative studies on scales of six Kashmir fishes. Kashmir Sci. 3 ; 1966.

597.015

830.261 Joseph, M. M. Histophysiological study of red and white muscles of fishes. Baroda, Zoology, 1964-67. George, J. C., Professor and Head of the Department.

Histological and biochemical changes that take place in the red and white muscles of an anadromous migratory fish and of a non-migratory marine fish have been studied. The results obtained have been correlated with the changes in the activities of various endocrine glands accompanying maturation, migration and spawning.

597.018

831.262 Khan, Asif Ali. Effects of physical and chemical changes in the environment on fish production. Aligarh, Zoology, 1966-69. Siddiqi, A. Qayyum, Lecturer.

597.016

832.263 Koul, Bansi Lal. Studies on the functional morphology of the urinogenital organs of some Kashmir fishes with notes on the fecundity and spawning seasons. Jammu & Kashmir, Zoology, 1964-68. Das, S. M., Professor and Head of the Department.

(1) Studies on the gross morphology of the gonads and fecundity of four fishes from Kashmir. Kashmir Sci. 2 ; 1965 ; and (2) A comparative study of the urinany bladder of four fishes from Kashmir. ibid. 3 ; 1966.

597.016

833.264 Koul, Surendra Nath. Comparative functional anatomy of the alimentary canal of Kashmir fishes. Jammu & Kashmir, Zoology, 1964-68. Das, S. M., Professor and Head of the Department.

The modification in the alimentary canal due to feeding habits of Kashmir fishes is being investigated and carnivorous, omnivorous and herbivorous fishes are being sorted out.

The ichthyofauna of Poonch, J & K State. Kashmir Sci. 2(1-2) ; 1965 : p. 147-155.

597.013

834.265 Krishnan Kutty Nair, M. G. Anatomy and embryology of the cardiac conducting system in pisces. Vikram, Motilal Vigyan Mahavidyalaya, Bhopal, 1966-70. Bhatnagar, S. P., Asstt. Professor of Zoology, Motilal Vigyan Mahavidyalaya, Bhopal.

597.04

835.266 Kulshreshtha, S. D. Study of the gustatory organs of Indian fishes with special reference to their occurrence on gill arches. Jodhpur, Zoology, 1966-68. Roonwal, M. L., Vice-Chancellor, University of Jodhpur.

It is a study of the gustatory organs, taste buds, of Indian fishes. Various parts of the fish body will be studied morphologically and histologically. However, special attention will be paid to the gill arches and a comparison made between fresh water and marine fishes.

597.04

836.267 Lahiri, Satyabrata. Studies on the skin and cutaneous sense organs in certain fishes. Jodhpur, Zoology, 1966-68. Kapoor, B. G., Lecturer.

The histology of skin and cutaneous sense organs in certain fishes is under study. The sense organs being studied are lateral line organs, nerve hillocks—pit organs, and taste buds. The investigations on the barbels, extensions of skin, and lips will also be taken up.

597.048

837.268 Nandi, Ajit. Cytological studies of some common fishes of West Bengal. Visva-Bharati, Zoology, 1964-68. Sarkar, H , Head of the Department.

The chromosomal studies of meotic metaphase of testes have been made. The investigations have thrown light on the cytotaxonomical relationship between the groups.

597.08

838.269 Narasimhan, P. V. Histology, histochemistry and physiology of saccus vasculosus in fishes. Delhi, Zoology, 1963-67. M. R. N. Prasad, Professor and Sundararaj, B. I., Reader.

597.08

839.270 Nishith Kumar. Studies on the ecology of the fishes of Ramgarh Lake, Gorakhpur. Gorakhpur, Zoology, 1964-67. Chaudhry, Hari Shankar, Professor and Head of the Department.

The work is confined to the ecological and hydrobiological studies of a local fresh water lake—Ramgarh lake, an important fishing centre of this region. The impact of the ecological factors on the age and growth, population, food and feeding habits, reproduction and behaviour of the fish are some of the important aspects which are being worked out to improve the resources of the lake.

597.05

840.271 Ojha, Prem Prakash. Study of the olfactory sense organs of certain fishes. Rajasthan, Zoology, 1964-67. Kapoor, Anoop Saran, Reader.

The research deals with the functional anatomy of the olfactory sense organs in representatives from different groups of fishes, histological observations of the various cell types found in the olfactory organs, and the olfactory mechanism in these fishes and their correlation with respective ecological conditions. An attempt will be made to explain the olfactory response of certain of these fishes to food and other organic odoriferous substances.

597.048

841.272 Pandey, Awadhesh Kumar. Studies on the thyroid gland in fishes. Vikram, Zoology, 1966-70. H. Swarup, Professor and Head of the Department.

597.044

842.273 Pathirissery, Umadevi. Mineral metabolism and its endocrinological control in fishes. Rajasthan, Zoology, 1963-66. Srivastava, Pratap Narain, Reader.

The uptake of the radiominerals P^{32} and Ca^{45} is being studied in the various tissues of fish from the aquarium water and after intraperitoneal injection and its hormonal regulation using the mammalian pituitary, parathyroid and adrenal hormones. G-M counters are being used for radio assay.

597.013

843.274 Qadri, Mohd. Yasien. Functional anatomy of the brain and nervous system of Kashmir fishes. Jammu & Kashmir, Zoology, 1965-68. Das, S. M., Professor and Head of the Department.

It is proposed to study the correlation between the brain pattern and the feeding habits of the Kashmir fishes. The morphology of schizothorax esocinus has already been worked out.

597.018

844.275 Rampal, Chander. Studies on the fecundity, breeding and the early life history of some food fishes of Kashmir. Jammu & Kashmir, Zoology, 1964-68. Das, S. M., Professor and Head of the Department.

The research comprises observations on (1) the ovaries of different stages and ovarian cycles of 8 fishes of Kashmir, (2) intra-ovarian eggs and identification of intervational stages, (3) the fecundity of 8 fish species, (4) the vitellogenesis, (5) the age and size at first maturity, spawning seasons and breeding habits, and (6) the development of 3 species e.g. Cyprinus carpio communis Linn., Schizothorax esocinus Heckel., Gambusia affinis holbrookii. The eggs, fry and fingerling stages of 9 species of Kashmir fishes have been identified also.

597.016

845.276 Shantha, K. Physiology of digestion in fresh water fish, Anabas scandens (Cuvier). Annamalai, Zoology, 1964-68. Govindan, P., Professor and Head of the Department.

Histophysiological studies on the digestive system in Anabas scandens have been undertaken. The regional distribution of different enzymes and the relationship that exists between the temperature and enzyme activity will be worked out. A detailed study of the exocrine and endocrine pancreas has also been undertaken.

597.013

846.277 Sharma, C. K. The effects of some industrial effluents on fishes. Delhi, Zoology, 1964-68. Seshachar, B. R., Professor and Head of the Department and Chandy, Mary, Principal, Miranda House, Delhi.

597.05

847.278 Somayajulu, Raghavapudi Surya Narayana. Studies on lipids of fish kidney. Shivaji, Zoology, 1965-67. Kamat, D. N., Head of the Department.

Due to the differences in environmental conditions, a diversity is observed in the excretory mechanism of sea water, fresh water and estuarine fishes. A study of the distribution of certain chemicals in fish kidney and their physiological role e.g. carbohydrate and lipid distribution, both qualitative and quantitative, has been undertaken using histochemical, biochemical and chromatographic methods.

597.044

848.279 Stanley, N. G. Endocrine aspects of reproduction in Colisa lalia (Hamilton-Buchanan). Annamalai, Zoology, 1963-66. Govindan, P., Professor and Head of the Department.

Histological and histochemical studies of hypophysis and ovary in relation to the seasonal cycle of the fish have been completed. Experimental studies related to injections of hypophyseal and ovarian hormones have been made and changes in the target organs have been studied.

597.044

849.280 Subla, Bashir Ahmad. On the functional anatomy of some Kashmir fishes Jammu & Kashmir, Zoology, 1963-67. Das, S. M., Professor and Head of the Department.

The functional anatomy of some of the systems of Kashmir fishes has been studied. The speciation of these fishes has also been tackled.

(1) The Ichthyofauna of Kashmir. Ichthyologica. 2(1-2) : p. 87-106 ; and (2) The functional anatomy of the alimentary canal of Schizothorax. ibid. 3(1-2) ; 1965.

597.01

850.281 Syed Mohd. Naseem. Haematological study of some fresh water fisheries. Aligarh, Zoology, 1966-69. Siddiqi, A. Qayyum, Lecturer.

597.0929

851.282 Verma, Surendra Mohan. Embryological studies of the endocrine glands of Channa punctatus, Bloch. Nagpur, Zoology, 1965-68. Belsare, D. K., Lecturer.

Pituitary, thyroid, gonads and interrenal glands are proposed to be studied in developing fish with special reference to the effect of intermediary metabolites and adrenergic and cholinergic drugs. These studies will be carried out with the help of histological and histochemical methods.

597.033

852.283 Victy Mercy Bai, V. Studies on the food requirements and the metabolic rate of a tropical fish. Madurai, Zoology, 1965-68. Job, S. V., Reader.

Ophiocephalus punctatus have been trained to feed on live Lepidocephalichthys thermalis and the growth rate of three different size groups at three different temperature levels is being found out. The oxygen consumption of the fish, both aerial and aquatic, will also be estimated at these different temperature levels.

597.09093

853.284 Vijayaraghavan, Sudarsana Ramanujam. Some biochemical studies during maturation in Liza dussumierii and fat composition with reference to sex in some fishes. Annamalai, Marine Biology, 1963-67. Seshaiya, R. V., Director, U. G. C. Centre for Marine Biology, Porto-Novo.

Carbohydrate, total nitrogen, non-protein nitrogen, amino acids, nucleic acids,phosphorus compounds, fat, glycerides, phospholipids and fatty acid changes have been studied during maturation in the muscle, liver and ovary of Liza dussumierii. Fat characteristics have been studied in three species of fishes with reference to sex. Phospholipids, glycerides and fatty acid composition with reference to sex will also be studied.

597.0166

Teleostei

854.285 Abraham, D. Saramma. Food, feeding habits and morphology of the alimentary canal of a few teleosts and elasmobranchs of Cochin Harbour area. Kerala, Marine Biology & Oceanography, 1962-66. Kurian, C. Varaghese, Professor.

Five species of commonly available fishes in the Cochin Harbour area have been selected for analysis of the stomach contents to understand their diet. A comparative study has been made of the morphology of the jaws and alimentary canal, and the histology of the different regions of the gut is under study. Physiological work regarding the occurrence and extent of activity of the different enzymes will also be carried out.

597.5

855.286 Dasari, Dhanikudu. Studies on the physiology of the teleostean pituitary. Osmania, Zoology, 1963-67. Krishnakumaran, Alapati, Reader.

Histophysiology of the pituitary gland in Lepidocephalichthys guntea has been investigated in relation to growth, maturation and reproduction. Experimental determination of the role of pituitary in the control of reproduction has also been made. The influence of some chemicals and the mode of their action on the pituitary and gonads is being studied.

597.5

856.287 Goswami, Sashi Vadan. Biology of reproduction in the Indian catfish, Heteropneustes fossilis. Delhi, Zoology, 1963-67. Sundararaj, B. I., Reader.

597.52

857.288 Gupta, Narendra Nath. Seasonal variations in the ovaries of Mastacembelus armatus, Lacep, and Ompok bi maculatus, Bloch. Vikram, Motilal Vigyan Mahavidyalaya, Bhopal, 1966-70. Gaur, R. D., Professor of Zoology, Motilal Vigyan Mahavidyalaya, Bhopal.

597.58

858.289 Hariharaputhran Nair, Gopalpillay. Radiation-biological and endocrinological studies on the haematology of certain teleostean fishes. Rajasthan, Zoology, 1964-67. Srivastava, Pratap Narain, Reader.

Radiation-biological and endocrinological studies on fish blood have been undertaken. The different blood components will be studied in normal, irradiated as well as hormone treated fishes. External and internal irradiation will be given using isotopes, like P-32, Ca-45, I-131 etc. The seasonal changes in the blood picture of normal fish will be studied. Electrophoretic study of the blood before and after irradiation will also be done.

597.5

859.290 Maheshwari, Suresh Chandra. Morphology of spiny eel, Mastacembelus armatus, Lacep. Vikram, Zoology, 1966-70. Sinha, B. M., Reader.

597.51

860.291 Mehra, N. K. Some aspects of reproduction in the catfish, Heteropneustes fossilis. Delhi, Zoology, 1966-69. Rao, S. R. V., Reader and Shah, V. C., Reader.

597.52

861.292 Nayyar, S. K. Biology of male reproductive tract in Indian catfish, H. fossilis. Delhi, Zoology, 1964-68. Seshachar, B. R., Professor and Head of the Department and Sundararaj, B. I., Reader.

597.52

862.293 Pandey, Kamleshwar. Studies on the seasonal changes of the pituitary glands and gonads of Amphipnous cuchia, a fresh water eel. Gorakhpur, Zoology, 1963-66. Chaudhry, Hari Shankar, Professor and Head of the Department.

Pituitary glands of *Amphipnous cuchia have been* studied in relation to the gonadal cycle, both histomorphologically and histochemically. Seasonal changes in gonads and pituitary have been recorded. Observations on the erythrosinophils in the rostral parsdistalis have also been made. Interpretation of the data obtained is in progress.

597.51

863.294 Pandey, Sri Krishna. Studies on the functional morphology of girdles and musculature of certain teleostean fishes. Gorakhpur, Zoology, 1962-67. Chaudhry, Hari Shankar, Professor and Head of the Department.

The structure of pectoral girdles and their musculature in Channa gachua (Ham.) and Channa punctatus (Bl) have been studied. Similar work in some other fishes is in progress. It is proposed to correlate these studies with the body form and movement of fish from functional point of view.

597.5

864.295 Pathak, Bbaboo Lal. Studies on the development of vertebral column in Cyprinus carpio Linn with special reference to Weberian ossicles and cranio vertebral joint. Indore, Zoology, 1965-68. Kulshrestha, Krishna Swaroop, Professor of Zoology, Holkar Science College, Indore.

Microtome sections passing through the frontal and transverse planes of the embryos of varying lengths have been cut. Specific stains have been used and permanent slides of serial sections prepared. Study of relevant elements is being carried out by graphical reconstruction method.

597.52

865.296 Prasad, Madduri Ananta Satya. Clupeoid fishes of the Porto-Novo waters. Annamalai, Marine Biology, 1966-69. Seshaiya, R. V., Director, U. G. C. Centre for Marine Biology, Porto-Novo.

A detailed study of the clupeoid fishes of Coramandel Coast including their systematics, bionomics, distribution, biometry and nervous system has been undertaken.

597.55

866.297 Rathi, Suraj Karan. Effect of irradiation on the reproductive physiology of teleostean fishes. Rajasthan, Zoology, 1963-66. Srivastava, Pratap Narain, Reader.

Male and female gonads of various fishes have been irradiated with various doses of radioisotopes, like P-32, Ca-45 and Co-60. Autopsies have been carried out at various intervals upto eight weeks and radiopathological changes studied using various histological techniques. Endocrinological cum radiobiological investigations have also been carried out using various hormones, like estrogen, progesterone, testosterone propionate, follicle stimulating hormone, leutinizing hormone, human pituitary gonadotrophin and pregnant mare serum (PMS) along with radioisotopes.

597.5

867.298 Ratnakar, Anand V. Studies on the development of kidney in a teleostean fish and comparative account of the structure of mesonephros in Beone. Hemirhampurs and Excoetus. Vikram, Zoology, 1964-68. H. Swarup, Professor and Head of the Department.

597.5

868.299 Raychaudhuri, Suprakas. On the structure and development of the vertebral column of some teleosteans. Calcutta, Zoology, 1964-67. Ganguly, D. N., Reader.

597.5

869.300 Saksena, Awadh Behari. Histology and enzymology of the digestive tract, in two teleost fishes—Rashara dasiconius Ham., and Mystus tengara Ham. Vikram, Zoology, 1966-70. Sinha, B. M., Reader.

597.5

870.301 Samant, Vishwa Mohini. Functional morphology of the pyloric caeca of some teleostean fishes. Gorakhpur, Zoology, 1964-68. Srivastava, Gopal Ji, Lecturer.

The work includes morphological, histological, histochemical and biochemical—chromatographic—studies of the pyloric caeca of the teleostean fishes.

597.5

871.302 Seetha Rao, Kotapalli. Studies on the development of skull in Tilapia mossembioe (Peters). Indore, Zoology, 1965-67. Kulshrestha, Krishna Swarup, Professor of Zoology, Holkar Science College, Indore.

Enough material has been collected from the monohybrid ponds of Khila fish farm, Cuttack. Relevant serial sections have been studied by the graphical reconstruction method. Alizarine transparancies and copper sulphate preparations have been made and used in the study of adult skulls. Many peculiarities noticed in the developmental aspects of the skull are being interpreted in the proper perspective in relation to the lateral line system. Important conclusions have been drawn and steps taken to establish the type of skull of T. mossambica in the Percoid group of fishes.

597.58

872.303 Sehgal, Atam. The effect of changing photoperiods on the breeding season of Heteropneustes fossilis. Delhi, Zoology, 1964-67. Seshachar, B. R., Professor and Head of the Department and Sundararaj, B. I., Reader.

597.52

873.304 Seithi, Khairati Lall. Studies on the structure of the digestive tract, nervous system and its relation with feeding *in some Indian teleosts.* **Vikram, Zoology, 1963-67.** H. Swarup, Professor **and Head of the Department.**

597.5

874.305 *Shanbhag, S. V. Cytotaxonomic studies on some fishes. Bombay, Institute of Science, 1965-68. Inamdar, N. B., Professor of Zoology.*

The systematics of stromatid and carangid fishes are proposed to be studied in relation to their cytology, cytochemistry and biochemistry.

597.58

875.306 Shrivastava, Kishori Lal. Studies on the eye of a teleost fish. Vikram, Zoology, 1966-70. H. Swarup, Professor and Head of the Department.

597.5

876.307 Shrivastava, Prabha. Studies on the development of Cyprinus carpio. Vikram, Zoology, 1966-70. H. Swarup, Professor and Head of the Department.

597.52

877.308 Shukla, Shree Kant. Studies on the structure of the heart and blood vascular system of some Indian teleosts. Vikram, Zoology, 1963-67. Sinha, B. M., Reader.

597.5

878.309 Srivastava, Anil Kumar. Studies on the heart and blood of certain bony fishes. Gorakhpur, Zoology, 1964-67. Chaudhry, Hari Shankar, Professor and Head of the Department.

The work includes gross anatomy of the heart, its various parts and their relative dimensions and histology. Hematological observations will constitute study of volume of blood corpuscles and clotting time ; haemoglobin content, size, amount and sedimentation rate of erythrocytes ; and the size and differential count of leukocytes.

(1) Zoo. Anz. 175 (4-6) ; 1965 ; p. 310-316 ; (2) ibid. 176 (2) ; 1966 : p. 103-106 ; and (3) ibid. 176 (4) ; 1966 : p. 259-263.

597.5

879.310 Subramanian, Annamalai. A biological study on eels. Annamalai. Marine Biology, 1964-67. Seshaiya, R. V., Director, U. G. C. Centre for Marine Biology, Porto-Novo.

A systematic account of eels, their morphology and development is envisaged. The histological and biochemical changes during development will also be investigated.

597.51

880.311 **Vyas, Snehlata.** Studies on the vascular and digestive systems of Mastacembelus pancalus and the mechanism of intestinal respiration. Vikram, Zoology, 1965-69. Sinha, B.M., Reader.

597.58

Amphibia

881.312 Mathur, Usha. The development and histochemistry of pituitary gland in some Amphibia with an account of the effect of certain tranquillizer and hormones on neurosecretion. Rajasthan, Zoology, 1963-67. Ramaswami, L.S., Professor and Head of the Department.

Effects of FSH, LH, Prolectin, Serpasil, Largactil, Metopiron, Testosterons and Oestrogen on frog pituitary, and Thyroxine, Metopiron, Serpasil, and Testosterone on tadpole pituitary are being studied histologically and histochemically. Special attention will, however, be paid to the study of action of all the hormones and drugs on the neurosecretory activity in the experimental animals.

597.6

882.313 Ray, Ajay Kumar. Contribution to the knowledge of embryology of Amphibia. Calcutta, Zoology, 1965-69. Ganguly, D. N., Reader.

597.6

883.314 Sharma, V. K. Nucleoproteins studies of amphibian cells. Delhi, Zoology, 1966-69. Rao, S. R. V., Reader and Shah, V. C., Reader.

597.6

Anura

884.315 Ghosh, Rama. Histochemical studies on liver in tadpoles. Calcutta, Physiology, 1963-67. Deb, C. C., Reader.

597.8

885.316 Kanakaraj, Subramanyam Rajagopal. Studies on adrenals and pituitary in relation to physiology of reproduction in the female skipper frog, Rana cyanophlyctis. Mysore, Zoology, 1963-67. Appaswamy Rao, Mirazkar, Reader.

Adrenals are active during breeding season. Adrenal cauterization inhibits ovulation, while administration of adrenocortical steroids stimulate spawning. In vitro and transplantation studies indicate that the ovulatory potency in adrenal ablated frogs is not affected. Eight days after hypophysectomy spawning response is either reduced or inhibited and its action is probably mediated through adrenals.

Curr. Sci. 34(10) : p.316-318.

597.8

886.317 Ritatundi, Amitakumar. Comparative histological studies of frog and toad. Calcutta, Biochemistry, 1965-69. Ray, D. K., Lecturer.

597.8

887.318 Varute, Appasahib Tansen. Studies on β glucuronidase of frog. Shivaji, Zoology, 1966-68. Kamat, D. N., Head of the Department.

The enzyme β glucuronidase is claimed to play a role in biological phenomena, like digestion, cellular proliferation, degeneration and steroid hormone secretion. Histochemical and biochemical studies of this enzyme have been undertaken to evaluate its role in frog as all these above phenomena are markedly exhibited in this animal.

597.8

Reptilia

888.319 Chakko, T. V. Studies in developmental physiology of vertebrates. Baroda, Zoology, 1964-67. Shah, R. V., Reader.

Studies on the histology and histochemistry of the regenerating organs of reptiles are being carried out to evaluate the biochemical and enzyme changes that take place during the new tissue formation.

598.1

889.320 Dutt, Kamla. Caryological studies in some Indian reptiles. Panjab, Zoology, 1962-67. Sharma, G. P., Professor and Head of the Department.

Cytological analysis of class Reptilia is of great importance due to the evolutionary significance of the group. The preliminary studies have already been started on these lines on the male caryotypes of Natrix stolata, Natrix piscator, Cerebereus rhynchops, Ptyas mucosus, Naja tripidians, Bungarus cerulus, Varanus monitor etc., which along with the studies of some lizards and turtles have yielded very interesting results.

Experientia. 22 ; 15th Dec.' 66.

598.1

890.321 More, Narsinha Krishnaji. Studies on mucopolysaccharides in reptilian kidney. Shivaji, Zoology, 1966-68. Kamat, D. N., Head of the Department.

The reptilian kidney like other vertebrate kidney performs the function of excretion and osmoregulation for which various physiological means are adopted. Studies are being made to elucidate the relationship between its histochemical nature and physiological role.

598.1

891.322 Patel, Vinodbhai Bhailalbhai. Studies in reptilian myology. Baroda, Zoology, 1962-67. Shah, R. V., Reader.

Chelonians in their mode of locomotion are either aquatic, terrestrial, or amphibious. Accordingly, the disposition and action of the muscles differs in relation to the modes of locomotion. A comparative study of the pectoral appendage of the terrestrial, amphibious, and marine chelonians is in progress.

Jour. Anim. Morphol. Physiol. 11(1) : p.58-84.

598.1

Lepidosauria

892.323 Choubey, Braj Jiwan Prasad. Study of the natural biology and endocrinology—Pituitary-Thyroid-Gonad relationship—in the Indian lizards. Bhagalpur, Zoology, 1965-67. Thapliyal, Jagadamba Prasad, Reader in Zoology, Banaras Hindu University, Varanasi.

Very little is known about the reptilian endocrinology, which has both academic and applied importance. The study is expected to yield results of fundamental importance, as the endocrine interrelationships are same throughout the vertebrate series and knowledge gained in one may, with minor changes, be applied to the betterment of man also.

598.112

893.324 John, K. O. Anatomical and physiological studies of the flying lizard, Draco dussumieri. Kerala, Mar Ivanios College, Trivandrum, 1962-67. Mathew, A. P., Professor of Zoology, Mar Ivanios College, Trivandrum.

The myology of Draco and histochemical localization of cholinesterases in the fibres of muscles have been studied. A study of fibre types, localization of fat and glycogen in them and the enzymes associated with their utilization has also been completed. Studies in thermoregulation, heat tolerance, rhythmic activity, feeding, breeding, courtship and egglaying are in progress.

Jour. Bombay Nat. Hist. Soc. 59(1) ; Apr., 62 : p. 298-301.

598.112

894.325 Krishna Reddy, P. R. Physiology of reproduction in the wall lizard Hemidactylus flaviviridcs (Ruppel). Delhi, Zoology, 1966-70. M. R. N. Prasad, Professor.

598.112

895.326 Sarkar, Debaprasad. Urinogenital systems of some Indian lizards. Calcutta, Zoology, 1965-67. Bhaduri, J. L., Professor and Head of the Department.

598.112

Aves

896.327 Das, A. R. K. Studies in avian biology. Baroda, Zoology, 1962-67. George, J. C., Professor and Head of the Department.

Studies on the biology and ethology of a nectarinid are being carried out.

(1) Pavo. 1(1) : p.60-65 ; and (2) ibid. 2(2) : p.71-83.

598.7

897.328 Mansuri, Allarakha Pirbhai. Certain aspects of feeding behaviour in birds. Gujarat, Zoology, 1965-68. Dubale, M. S., Reader and Head of the Department.

The study of jaw musculature of birds belonging to different species of the family Ardeidae has been carried out. It is observed that they differ in their feeding behaviour. An attempt will be made to correlate it with their structural adaptation.

598.34

General Principles

898.329 Bidwai, Pushpamala Padmakar. Cytology and ultrastructure of the conducting tissue of the avian heart. Panjab, Biophysics, 1966-70. Bawa, Sukhdev Raj, Head of the Department.

Gross anatomy, cytology and cytochemistry of the conducting tissue of hearts of parrot, pigeon, sparrow, crow and fowl will be studied. Light and electron microscopic investigations on the localization of a variety of enzymes of the conducting tissue will also be undertaken and the results compared with the cardiac muscle.

598.28

899.330 Bonny, Pilo. Histochemical and histophysiological studies on avian tissues. Baroda, Zoology, 1965-67. George, J. C., Professor and Head of the Department.

The research is mainly concerned with the physiological aspects of bird migration. Histological, histochemical and biochemical studies are being carried out on the liver, muscle and other tissues of migratory birds in the post-and premigratory periods in comparison with that of non-migratory birds in corresponding periods.

598.28

900.331 Bose, D. A. Chandra. Histophysiological observations on certain bird and bat muscles. Baroda, Zoology, 1963-67. George, J. C., Professor and Head of the Department.

Histochemical studies on the cellular organisation in the flight and leg muscles of various birds have been carried out to gauge the potentialities of these muscles for sustained activity. Diurnal variations in muscle glycogen and changes due to cold stress have also been studied.

598.218

901.332 John, T. M. Studies on some metabolic and neuro-endocrinological aspects of bird migration. Baroda, Zoology, 1963-66. George, J. C., Professor and Head of the Department.

Studies have been carried out on certain metabolic and neuro-endocrinological aspects of bird migration. It is shown that the physiology of the avian body undergoes dynamic changes in the process of preparing the bird for migration. These changes follow certain well defined patterns and are controlled by a physiological mechanism of high precision.

598.252

902.333 Mecci, Abbasia Begum. Studies on the morphology and morphogenesis of the skull in Sauropsida. Mysore, Central College, Bangalore. 1963-67. Kadam, K. M., Lecturer in Zoology, Central College, Bangalore.

In order to fill the lacuna in our knowledge of the development of skull in Indian birds, both the chondrocranium and osteocranium have been studied in two birds, Ploceus and Acridotheres by using wax model method, whole mounts and alizarine transparencies. For purposes of comparison, the chondrocranium of crocodile has been studied and described.

598.248

903.334 Mukhopadhyay, Ajitkumar. Food habits of water birds of Sundarbanes, District 24-Parganas, with notes on their ethology and taxonomy. Calcutta, Physiology. 1955-67. Biswas, Birwamay, Research Guide, Geological Survey of India, Calcutta.

598.2924

904.335 Navarathnam, Eathakota Susan. Studies on the intestinal flagellates of birds and mammals of Andhra Pradesh. Osmania, Zoology, 1963-67. Qadri, Syed Shamsuddin, Reader.

Thirty species belonging to the orders Protomonadina and Polymastiqina have been collected. Stained smears and camera lucida drawings have also been made. Twenty five species have been ascertained as new to the science. The systematic account of these species is envisaged.

598.243

905.336 Neelakantan, B. Comparative study of leg musculature of local aquatic birds. Karnatak, Zoology, 1964-68. George, C. J., Head of the Department.

The hind limb of the spoon bill, coot, ibis, heron, grebe, teal, stilt, jacana, wild and domestic fowl, and egret has been dissected to study the origin and insertion of the leg muscles.

598.2924

906.337 Nene, Rajani Vishnu. A histophysiological study of certain striated muscles with special reference to those of the avian wing. Baroda, Zoology, 1962-66. George, J. C., Professor and Head of the Department.

598.218

907.338 Vyas, Devendra Kumar. Histochemical studies of some endocrine glands in the representative birds of Rajasthan. Rajasthan. Zoology. 1962-66. Ramaswami, L. S., Professor and Head of the Department.

The reproductive phenomena of desert birds in relation to the pituitary, adrenal and thyroid glands have been studied by histochemical and surgical techniques to follow the interrelationship among the endocrine glands of normal and experimental birds. The annual reproductive cycle of seven different birds has been studied after repeating the observations for full three years. The effect of sex steroids and prolactin on the adult female reproductive organs of birds has also been studied.

598.28

Galliformes

908.339 Medda, Jiten. A study on differentiation of central nervous system of chick. Kalyani, Zoology, 1963-66. Bose, A. K., Lecturer.

A quantitative assay for cholesterol, lipid nitrogen, glutamic acid and RNA as also a study of osmotic properties and cationic exchange capacity from developing CNS of chick have been made. It is observed that these have some quantitative relation with morphogenetic sequences of the CNS.

(1) Fol. Biol. 13(3) ; 1965 : p. 281 ; (2) ibid. 13(3) ; 1965 : p. 289 ; (3) Sci. & Cul. 31 ; 1965 : p. 99 ; (4) Roux Archiv. 157 ; 1966 : p. 303 ; (5) Naturwiss. 7 ; 1966 : p. 183 ; and (6) Acta Histochem. 26 ; 1967 : p. 1.

598.61

909.340 Muralidharan, P. Certain morphological and histochemical aspects in chick jaw muscles. Gujarat, Zoology, 1966-69. Dubale, M. S., Reader and Head of the Department.

The studies pertain to the different morphological and histochemical aspects of the jaw muscles of Gallus domesticas at different stages of its growth and development.

598.61

Passeriformes

910.341 Abdur Razack, K. Studies on the biology of swifts. Baroda, Zoology, 1964-66. Naik. R. M., Reader.

The biology of the house swift, Apus affinis, is being studied with reference to the seasonal variations in nest building and egg laying, incubation period and growth rate of nestlings. The variations in the parental attentiveness at the nest will also be studied and an analysis of the food of the nestlings undertaken.

Pavo. 3 ; 1965 : p. 55-71.

598.899

911.342 Andrews, M. I. Biology of Babblers, family Muscicapidae, class-Aves. Baroda, Zoology, 1964-66. Naik, R. M., Reader.

The pterylography and the plumage, moult, gonadal and thyroid cycles in Turdoides striatus have been studied. These studies have been done on the birds collected all round the year. Behavioural studies on the same birds are in progress.

(1) Pavo. 3 ; 1965 : p. 47-54 ; and (2) ibid. 1965 : p. 72-74.

598.8

912.343 Malhotra, Rajinder Kumar. Myology of birds. Gujarat, Zoology, 1963-67. Dubale, M. S., Reader and Head of the Department.

The passerine birds exhibit a great deal of variation in their feeding habits and respond to almost every conceivable food niche. For this purpose they have developed a number of adaptive features in the skeleton, the epidermal structures and the myology of the jaw and the tongue. An attempt is being made to correlate the feeding behaviour of a number of representative passerines with the functional anatomy of their feeding apparatus.

598.8

913.344 Naik, Nanubhai Lallubhai. Studies on the avian family Sturnidae. Baroda, Zoology, 1965-67. Naik, R. M., Reader.

A comparative study of the myology of the pectoral and pelvic appendages, plumage and moult of the avian family Sturnidae is in progress.

598.863

914.345 *Naik, Shashi Rameshchandra. Biology of some common Indian birds. Baroda, Zoology, 1964-66. Naik, R. M.,* Reader.

Moult cycle and cyclic changes in the gonads and the salivary and thyroid glands of the house swift, apus affinis are under study.

(1) Pavo. 1 ; 1963 : p. 99-102 ; (2) ibid. 2 ; 1964 : p. 105-110 ; (3) ibid. 3 ; 1965 : p. 77-88 ; and (4) ibid. 3 ; 1965 : p. 96-109.

598.899

Mammalia

915.346 Khajuria, Hitopdeshak. A contribution to the study of systematics and ecology of animals with special reference to mammals. *D.Sc.* Jabalpur, Zoology, 1958-67. Sharma, G. P., Professor and Head of the Department.

Higher systematic categories have objectively been defined with the help of original mathematical formulae. Groups which have received special attention from the point of view of systematics and ecology are Primates and Chiroptera.

599

General Principles

916.347 Das, Ranjit Kumar. Spontaneous and chemically induced chromosome aberrations in mammals. Kalyani, Zoology, 1966-69. Manna, G. K., Head of the Department.

The effects of some chemicals, belonging to the group of purine and pyrimidine analogues and chelating agents, on the somatic as well as the spermatocytic chromosomes of some laboratory mammals are under study.

599.08

917.348 Kaul, Dhananjaya Kumar. Some aspects of the reproductive physiology of the desert gerbil. Rajasthan, Zoology, 1964-67. Ramaswami, L. S., Professor and Head of the Department.

Observations on the reproductive activity of the desert gerbil have been made throughout the year. Various phenomena of the reproductive physiology i.e. estrous cycle, gestation period, litter size, and lactation period of the gerbil have been studied. The effects of certain sex-steroids and various drugs, like clomiphene, metopiron, cadmium etc., on the reproductive organs of the animal are also being studied.

(1) Jour. Roy. Micros. Soc. 85 ; 1966 : p. 297 ; and (2) Curr. Sci. 35 ; 1966 : p. 521.

599.090954

918.349 Kohli, Kulwant Singh. Biochemistry of mammalian spermatogenesis. Rajasthan, Zoology, 1964-68. Mathur, Rajinder Shankar, Reader.

The localization and activities of certain hydrolytic and oxidative enzyme systems in the testes of normal and experimental animals have been studied using various histochemical techniques. The estimation of these enzymes has also been carried out by colorimetric and chromatographic techniques.

599.019258

919.350 Majumdar, Gopalchandra. Studies on the synthesis of proteins by milk and the mammary gland. Calcutta, Biochemistry, 1965-68. Ganguli, N. C., Professor of Biochemistry, Dairy Research Institute, Karnal.

599.013

920.351 Mitra, Ardhendu Bikas. Spontaneous and chemically induced chromosome aberrations in mammals. Kalyani, Zoology. 1966 69. Manna, G. K., Head of the Department.

599.08

921.352 Padmanabha Rao, Chemudupati Anantha. Biochemical studies on the blood proteins of Presbytis e. entellus Dufresne with reference to sex, sex cycle and pregnancy. Rajasthan, Zoology, 1965-68. Ramaswami, L. S., Professor and Head of the Department.

The changes in the blood proteins at various stages of the sexual activity in langurs are being investigated in relation to the hormonal output of the pituitary body. These investigations are expected to throw light on the influence of sex and sex hormones on blood through their well-known actions on metabolism and somatic growth.

599.019296

922.353 Qayyum, M. A. Anatomical and histological studies of the cardiac conducting system of certain mammals. Vikram, Motilal Vigyan Mahavidyalaya, Bhopal, 1965-69. Bhatnagar, S. P., Asstt. Professor, Motilal Vigyan Mahavidyalaya, Bhopal.

599.04

923.354 Ramesha Rao, Araga. Effects of internal gamma and beta irradiation on the reproductive physiology of certain mammals. Rajasthan, Zoology, 1963-66. Srivastava, Pratap Narain, Reader.

Radiobiological effects of internal emitters, like Co-60, Ca-45 and P-32 on the germ cells of male and female mammals, at various dose levels and intervals, have been studied, both qualitatively and quantitatively, using gerbil, white and black mice and rats as test animals. Gonadotropic response of irradiated ovaries has also been studied.

599.019156

924.355 Sethi, Narinder Singh. Histology and histochemistry of male accessory reproductive organs of certain mammals. Rajasthan, Zoology, 1965-68. Mathur, Rajinder Shankar, Reader.

The object of present investigations is to make a comprehensive study of male sex accessories at cellular level by various histological, histochemical and quantitative techniques. The new approach to the problem at cellular level will throw more light in understanding the physiology of reproduction in the mammals.

599.08

925.356 Sharma, Shyam Chandra. Study of hairs of desert mammals. Jodhpur, Zoology, 1966-69. Roonwal. M. L, Vice-Chancellor, Jodhpur University.

Both the external and internal morphology of the hairs of the different mammals found in Rajasthan desert are under study.

599.04

926.357 Udwadia, Tehemton Erach. Studies in the creation and development of adventitious coronary circulation in mammalian hearts. Bombay, Seth G. S. Medical College, Bombay, 1964-67. Sen, P. K.. Professor, Seth G. S. Medical College, Bombay.

Over 200 experiments, divided into numerous series, have been conducted on dogs to assess the value of artificially created transventricular 'Acupuncture' channels in combatting the challenge of coronary artery occlusion. Comparative anatomy of reptilian myocardial circulation have also been studied.

599.011

Glires

927.358 Buldeo, Vibhavari. Histology and histochemistry of the scent gland of the house shrew, Suncus murinus. Jabalpur, Govt. Science College, Jabalpur, 1965-67. Sharma, Dharmvir, Head of the Department of Zoology, Govt. Science College, Jabalpur.

The histology, cytology and histochemistry of the scent gland are being studied using various routine and special staining techniques. An attempt will also be made to correlate the structural study with the possible functions of the gland.

599.33

928.359 D'Souza, Malathi E. A. Effect of adrenalectomy on compensatory ovarian hypertrophy and pregnancy in albino rats. Mysore, Zoology, 1964-68. Appaswamy Rao, Mirazkar, Reader.

Adrenals are active during estrus and in pregnancy. Adrenalectomy abolishes the compensatory ovarian hypertrophy in hemispayed rats. However, it is found that administration of saline restores this compensatory hypertrophic response of the ovary. Adreno-corticoids also restore this ovarian response but not estrogens and progesterones in adrenal ablated hemispayed rats. Adrenalectomy, in the early part of pregnancy, is found to cause resorption but has no effect on implantation. The effects of progestational compounds on the maintenance of pregnancy in adrenal ablated rats are being investigated.

Curr. Sci. 34(20) ; 20th Oct. '65 : p. 584-586.

599.3233

929.360 Kalra, S. P. Studies on the effects of clomiphene on the physiology of reproduction in rat. Delhi, Zoology, 1962-67. M. R. N Prasad, Professor.

599.3233

930.361 Mohla, Suresh. Studies on action of anti-fertility compounds in rats. Delhi, Zoology, 1965-68. M. R. N. Prasad, Professor.

599.3233

931.362 Patra, Benubinode Studies on rat filari litomossidrocarine with reference to problems associated with filarial chemotherapy. Calcutta, Biochemistry, 1962-67. Basu, U. P., Director, Bengal Immunity Research Institute, Calcutta.

599.3233

932.263 Reddi, A. H. Studies on the biology of reproduction in the male five striped Indian palm squirrel, Funambulus pennanti. Delhi, Zoology, 1964-66. M. R. N. Prasad, Professor.

599.3232

933.364 Sarkar, Bithi. Some permeability characteristics of rabbit intestinal epithelium and their alterations in experimental cobra. Calcutta, Physiology, 1964-68. Schafer, D. E., Visiting Scientist (Physiology), Rockefeller Foundation.

599.322

934.365 Seth, Pushpa. Biology of reproduction in the female Indian five striped squirrel. Funambulus pennanti Wroughton.

Delhi, Zoology, 1963-67. M. R. N. Prasad, Professor and Rao, S. R. V., Reader.

599.3232

935.366 Shivashankar, A. K. Studies on nutrition in relation to reproduction in the five striped palm squirrel, Funambulus pennanti Wroughton. Delhi, Zoology, 1963-67. M. R. N. Prasad, Professor.

599.3232

936.367 Wadhera, Chandra Kanta. Histology and histochemistry of the salivary glands of the house shrew, Suncus murinus Jabalpur, Govt. Science College, Jabalpur, 1965-67. Sivaram, Saraswati, Asstt. Professor of Zoology, Govt. Science College, Jabalpur.

The structure, chemical and cytological composition and function of the salivary glands of the shrews are being studied using histological and special staining techniques.

599.33

Mesaxonia, Paraxonia & Ferungulata

937.368 Gupte, Vijay Kumar Gajananrao. Histochemical studies on brain, kidney and liver of goat embryo of different stages. Vikram, Zoology, 1966-70. Johri, G. N., Lecturer.

599.7358

938.369 Shukla, K. P. Study of the source of gonadotrophic hormones and their potency at various stages in pregnant donkey serum and their comparison with gonadotrophies in pregnant mare serum. Patel, Biology, 1965-69. Buch, N. C., Senior Scientific Research Officer, Ford Foundation Project, Institute of Agriculture, Anand.

Pregnant mare serum contains gonadotrophies from 40 to 150 days of pregnancy, but the knowledge regarding contents of gonadotrophies in donkey during pregnancy is obscure. A study of qualitative and quantitative estimates of gonadotropheis in pregnant donkey is being done during various stages of pregnancy. The isolation, characterization and comparison of circulating gonadotropheis with standard PMS are also planned.

599.725

Carnivora

939.370 Wal, Y. C. Nutritional requirements of woolly bear, Anthrenus flavipes Lec. Agra, Defence Research Laboratory (Materials), Kanpur, 1964-68. Agarwal, P. N., Deputy Director, Defence Research Laboratory (Materials), Kanpur.

A chemically defined synthetic medium on which the insect can complete its life cycle in 90-113 days as compared to 270 days on woollen fabric has been found out. Work on vitamins, amino acids, and lipid requirements is in progress.

Nutritional requirements of woolly bear : A new synthetic medium for rapid growth and development of Anthrenus fiavipes Lec. (I). (with P. N. Agarwal). Labdev Jour. Sci. Tech. 4 ; 1966 : p. 71.

599.74446

Primates

940.371 David, George F. X. Some aspects of endocrine control of reproduction in the Indian hanuman langur. Presbytis e. entellus Dufresne. Rajasthan, Zoology. 1965-68. Ramaswami, L. S., Professor and Head of the Department.

The behaviour of different endocrine glands viz., the pituitary, adrenals and the gonads is being studied with reference to the physiology of reproduction in both normal and experimented langurs. The nature of the associated structures with these glands will also be studied under various conditions.

599.82

941.372 Lahiri, Ramkrishna. Comparative behaviour of the lion tailed monkey, Macca Sibras, in social groups. Calcutta, Zoology, 1965-67. Bhaduri, J. L., Professor and Head of the Department.

599.82

MEDICAL SCIENCES

Human Anatomy

942.1 Das, Bidhubhusan. Comparative study of lacrimal apparatus in vertebrates. Calcutta, Medicine, 1966-68. Chatterjee, Hirendra Kumar, Head of the Department of Anatomy, R. G. Kar Medical College, Calcutta.

611.84

943.2 De, Ranjitkumar. Studies on the comparative anatomy of bony pelvis in vertebrates with special reference to human pelvis. Calcutta, Medicine, 1965-67. Chatterjee, Hirendra Kumar, Head of the Department of Anatomy, R. G. Kar Medical College, Calcutta.

611.96

944.3 De, Sudhansukumar. Soft tissue X-ray study of the normal architecture of human breast in virgin and married meluaprocus and pavous women with special reference to breast tumour. Calcutta, Medicine, 1966-67. Banerjee, N. M., Professor of Radiology, Medical College, Calcutta.

611.49

Cytology & Histology

945.4 Bandyopadhyay, Sakuntala. An investigation on the effects of different carcinogens and mutagens on chromosome structure and cytological study. Calcutta, Biochemistry, 1963-67. Sarma, A. K.

611.0181

946.5 Chakrabarti, Sudhirkumar. Comparative histological studies of bone marrow in Amphibia, Reptilia and larger mammals. Calcutta, Medicine, 1965-67. Banerjee, P. K., Secretary, University College of Medicine, Calcutta.

611.0184

947.6 Chaterji, Manju. Studies on idiopathic thrombocytpenic purpose. Calcutta, Medicine, 1965-67. Chatterjee, J. B., Director, School of Tropical Medicine, Calcutta.

611.018

948.7 Lahiri, Prasanta Kumar. Fundamental studies and functions of histamine. Calcutta, Medicine, 1964-67. Sanyal, R. K.

611.0184

949.8 **Mainigi, Daivenderkumar Rajaram.** Studies on human cervix tissue. Baroda, Biochemistry, 1962-66. Ramakrishnan, C. V., Professor and Head of the Department.

Studies have been carried out to ascertain whether human cervix tissue can be differentiated from pathological ones in tissue culture. It has been observed that cultures of cancer tissue are characterized by a high rate of glucose utilization as compared to normal tissues. Similarly, there is an indication of some difference in the metabolism of aspartic, glutamine, arginine, threomine, lysin and histidine between normal and cancer tissues. In support of these findings, related enzymes of carbohydrate and amino acid metabolism have been established.

611.018

950.9 **Majumdar, Alakananda.** Studies in transformation of cancerous cells with reference to a biochemical trait. Calcutta, Biochemistry, 1962-67. Basu, Sushil Kumar. Lecturer.

611.0181

951.10 **Pal, Maya.** Morphological and biochemical study of connective tissue during carcenogenesis : An experimental study. Calcutta, Medicine, 1965-68. Sengupta, Kalipada, Professor of Pathology. S. S. K. M. Hospital. *Calcutta.*

611.0162

952.11 **Ray, Dipankar.** Quantitative chromosomes cytochemistry of normal and malignant cells. Calcutta, Physiology, 1966-68. De, P. K., Lecturer.

611.0181

Respiratory Organs

953.12 **Basuray, Satyendranath.** A study of the comparative anatomy of the broch pulmonary tree. Calcutta, Medicine, 1963-67. Ray, Probodh Ranjan, Professor of Anatomy, R. G. Kar Medical College, Calcutta.

611.24

954.13 **Chakrabarti, Biswanath.** Studies on the comparative anatomy of the diaphragm, Patrocoabdominal, in vertebrates. Calcutta, Medicine, 1964-67. Chatterjee, Birendra Kumar, Head of the Department of Anatomy, R. G. *Kar Medical College, Calcutta.*

611.26

Urogenital Organs

955.14 **Bhattacharyya, Birendra Kumar.** Cytology and cytochemistry of the prostate in different conditions. Calcutta, Medicine, 1966-68. Independently.

611.63

956.15 Chaudhuri, Piku. Vaginal cytology at the end of pregnancy. Calcutta, Medicine, 1966-68. Guha, A. C., Professor of Pathology, National Medical College, Calcutta.

611.67

Motor & Integumentary Organs

957.16 Banerji, Anadinath. A study on the comparative anatomy of the knee-joint in vertebrates. Calcutta, Medicine, 1963-67. Chatterjee, Hirendra Kumar, Head of the Department of Anatomy, R. G. Kar Medical College, Calcutta.

611.72

958.17 Chaudhuri, Syamalendu. Studies on the comparative anatomy of the skeleton of the fost, Hind limb, in vertebrates. Calcutta, Medicine, 1964-67. Chatterjee, Hirendra Kumar, Head of the Department of Anatomy, R. G. Kar Medical College, Calcutta.

611.718

959.18 Patel, Popatlal Chunilal. Ontogeny of human bones between the age of 1 and 3 years. Baroda, Anatomy, 1965-67. Srivastava, H. C., Professor of Anatomy, Medical College, Baroda.

Following upon a work on ontogeny of human long bones between the ages of 3-13, this research is extended to all bones between the ages 1-3, keeping the points of *half-yearly observations* on X-ray plates (same individual) and extending the observation by dissection of available human and mammalian specimens. Insisting on exact age, a coefficient standard of growth and height is aimed at.

611.71

Human Physiology

960.19 Bhatty, Ravji Mohanlal. Physiology of mitral valves with special reference to immuno chemistry. Baroda, Physiology, 1965-67. Amin, M. G., Professor of Physiology, Medical College, Baroda.

Cavelti reported in 1947 the production of circulating antibodies in rabbits immunized with rabbit heart. Other authors confirmed the heterologous and homologous antibodies by using immunological tests, like gel precipitation, TCH, I.H., P.C.A., L.A. etc. The present study demonstrates the production of antibodies against rabbit's heart and rat's heart. In addition antigenic property of rabbits' and dogs' mitral valves has also been studied showing positive results.

612

Biophysics

961.20 Chaubal, K. A. Biophysical studies at cellular level. Bombay, Indian Cancer Research Centre, Bombay, 1962-67. Korgaonkar, K. S., Head of the Biophysics Group, Indian Cancer Research Centre, Bombay.

The present investigations aim at enlarging the scope of interference microscopy and fluorescence microscopy in quantitative studies at cellular level. Improved procedures for the measurements covering cellular areas, refractive indices of biological media, thicknesses of biological samples and quantitative cellular fluorescene estimations are being developed.

612.01448

Biochemistry

962.21 Dhillon, H. K. Studies in iron deficiency anaemia. Panjab, Biochemistry, 1965-68. Sareen, K. N., Professor and Head of the Department.

The research envisages studies with particular reference to the iron-containing and the iron-requiring enzymes.

612.01524

963.22 Divekar, Ashok Yashwant. Biochemical mechanisms of resistance to aminopterin in a strain of Yoshida sarcoma. Bombay, Indian Cancer Research Centre, Bombay, 1965-67. Braganca, B. M., Asstt. Professor, Indian Cancer Research Centre, Bombay.

It is proposed to study the biochemical mechanisms involved in the development of resistance to folic acid analogues in cancer cells. Strains of Yoshida sarcoma resistant to antifolates have been developed and various biochemical properties of the sensitive and resistant strains compared.

612.015

964.23 Ghadially, R. C. Studies on Ph.A. Bombay, Indian Cancer Research Centre, Bombay, 1964-67. Braganca, B. M., Asstt. Professor, Indian Cancer Research Centre, Bombay.

The research deals with purification and properties of phospholipase A. Particular care has been taken to eliminate contamination of other components, such as, the toxin present in cobra. As many of the earlier studies on presumably pure phospholipase preparations have been found to contain neurotoxic activity, the chemical and biological properties of purified Ph. A are under study.

612.015

965.24 Ghai, Rajendra Durgaprasad. Some aspects of gastric secretion. Baroda, Biochemistry, 1966-68. Pai, M. L., Lecturer in Biochemistry, Medical College, Baroda.

It is proposed to study the effect of the ingestion of various Indian food preparations, commonly consumed by people in this part of the country, on the gastric mucosal secretion and its relationship with gastric acidity, pH, pepsin content etc. Studies will also be carried out to find out the mucopolysaccharide components e.g. glucosamine, galactosamine etc.

612.015

966.25 Ittyerah, Thomas Roy. Metabolic studies in protein deficiency. Kerala, Christian Medical College & Hospital, Vellore, 1964-67. Dumm, Mary E., Professor of Biochemistry & Nutrition, Christian Medical College & Hospital, Vellore.

The urinary excretion of aryl sulfatase and acid phosphatase is being studied to ascertain whether cellular damage occurs in kwashiorkor. The role of an associated vitamin A deficiency in kwashiorkor is also being studied with reference to the excretion of these lysosomal enzymes.

612.01526

967.26 Joshi, Tara Vinayak. Studies on some aspects of gastric secretion. Baroda, Biochemistry, 1965-67. Pai, M. L., Lecturer in Biochemistry, Medical College, Baroda.

Studies are being carried out to ascertain the relationship between the free acidity, total acidity, pH etc., of the gastric samples aspirated from the stomachs of the experimental animals and the parietal cell population of the gastric mucosa. In some groups, the effect of phenylbutazone administration in proper doses on acidity etc., will also be studied.

612.015

968.27 Kundan Singh. Studies in iron deficiency anaemia. Panjab, Biochemistry, 1964-67. Sareen, K. N., Professor and Head of the Department.

The research envisages studies with particular reference to the iron-containing and iron-requiring enzymes.

612.01524

969.28 Vaidya, N. R. Mechanism of development of cell resistance to analogues of folic acid. Bombay, Indian Cancer Research Centre. Bombay, 1961-67. Braganca, B. M., Asstt. Professor, Indian Cancer Research Centre, Bombay.

A. aerogenes, whose growth is initially inhibited by aminopterin, subsequently develop resistance to it. It is shown in sensitive and resistant cells that the acquired resistance is not due to breakdown of aminopterin. The effect of aminopterin on conjugation of folic acid has been studied in sensitive and resistant cells.

612.015

Circulatory & Hemic Systems

Blood

970.29 Bellare, Ramesh Appu. Studies in manganese poisoning. Bombay, Haffkine Institute, Bombay, 1965-67. Rao, S. S., Asstt. Director, Haffkine Institute, Bombay.

Manganese concentration in body-fluid and excreta of chronic Mn poisoning patients and unexposed controls have shown significant lowering of Mn in sera of patients. Administration of Ca-EDTA parenterally and orally indicated that only oral administration increased the serum Mn levels of patients but no effect is observed in controls. Hair manganese levels have been shown to be a very sensitive index of the degree of exposure to manganese. Rise in serum manganese level after oral administration of Ca-EDTA has been suggested as a possible test for confirmation of suspected chronic manganese poisoning.

612.12

971.30 Gupta, Rajkanti. Studies on the effect of lipids on fibrinolysis. Calcutta, Medicine, 1966-69. Sen, N. N.

612.115

972.31 Panicker, Narayanan Nair Vasudeva. Intermediary metabolism with reference to metabolism of erythrocytes. Kerala, Biochemistry, 1964-67. Yegnanarayana Iyer, Gopalakrishna Iyer, Professor of Biochemistry, Medical College, Kottayam.

The detoxication of hydrogen peroxide by catalase, glutathione peroxidase, diaphorase and similar protective agents is being studied. The maintenance of glutathione in the reduced state and the protection of haemoglobin from oxidation are the criteria of detoxication employed.

Can. Jour. Biochem. 43 ; 1965 : p. 1029-1039.

612.1111

973.32 Qamar Z. Husain. Isolation and the role of accelerators in blood coagulation and their status in health and diseases. Aligarh, Biochemistry, 1966-69. n.g.

612.115

974.33 Sharma, D. S. Biochemical studies in certain lipopathies. Panjab, Biochemistry, 1964-67. Sareen, K. N., Professor and Head of the Department.

612.12

Heart

975.34 Dattachaudhuri, Basudeb. Cardiovascular and neurophysiology. Calcutta, Physiology, 1962-67. Maiti, A. K., Head of the Department of Physiology.

612.17

976.35 Venkateshwarlu, Kankanala. Comparative study of the effects of training in certain physical activities on some cardiovascular, respiratory and renal functions. Punjabi, Education, 1965-67. Mahindroo, S. R., Principal, Govt. College of Physical Education, Patiala.

Monthly tests have been conducted on trainees of National Institute of Sports, Patiala, undergoing training in athletics, wrestling, swimming and hockey, for four months on the selected cardiovascular, respiratory and renal functions. Additional tests have been conducted on some selected national teams, like hockey, wrestling and athletics which underwent intensive coaching for about a month at the National Institute of Sports.

612.17

Respiratory System

977.36 Sinha, Asiskumar. Regulation of respiration in man. Calcutta, Physiology, 1966-68. Chatterjee, H. P., Assoc. Professor of Physiology, Presidency College, Calcutta.

612.2

Nutrition

978.37 Kalgi, V. H. Microbiological study of folic acid in normal and anaemia subjects. Bombay, Grant Medical College, Bombay, 1963-67. Parekh, J. G., Professor of Medicine, Grant Medical College, Bombay.

The nutritional status of folic acid, L. casei factor, in normal human subjects and anaemia subjects has been evaluated with special reference to iron deficiency anaemia and megaloblastic anaemia, and alteration in folic acid metabolism in nutritional deficiency anaemias.

612.3

979.38 Ved Prakash. A correlated study of the effects of hormones and dietary deficiencies on placenta. Delhi, Anatomy, 1966-68. Bajaj, I. D., Head of the Department of Anatomy, Maulana Azad Medical College, Delhi.

The effects of hormones and dietary deficiencies on placenta and course of pregnancy will be evaluated on the basis of the investigations.

612.3

Intestinal Digestion

980.39 Mahajan, R.G. Metabolism and function in the intestine with special reference to ion and water transport. Calcutta, Physiology, 1965-67. Narayanswami, A., Scientist, Indian Institute of Experimental Medicine, Calcutta.

612.33

981.40 Maheshwari, H. B. A study of the role of spleen in liver regeneration. Delhi, Pathology, 1966-68. Sharad Kumar, Professor of Pathology, Lady Hardinge Medical College, Delhi.

The base line values for mitotic activity, the glycogen content and the total fat content of the normal liver tissue have been obtained in a group of 10 albino rats. Only an occasional mitotic figure has been observed after screening 100 high power fields. The glycogen content and the total fat vary from 1.25 and 1.63 and 1.92 to 2.88 gm. per 100 gm. of liver weight. Studies are in progress in other groups of normal animals, and after hepatectomy in normal and splenectomised rats.

612.35

982.41 Sengupta, Sutapa. Functional significance of extracellular and other fluid volumes of intestinal tissues in normal and abnormal states and in experimental cholera. Calcutta, Physiology, 1964-68. Schafer, D. E., Visiting Scientist in Physiology, Rockefeller Foundation.

612.33

983.42 Sett, Debaki. Some physiological aspects of intestinal mucopolysachharides and related compounds and effect of chohraganic toxin on the function involved. Calcutta, Physiology, 1965-69. Schafer, D. E., Visiting Scientist in Physiology, Rockefeller.

612.33

Metabolism

984.43 Aithal, Harihattu Nagappa. Oxidative metabolism under conditions of high altitude. I.I.S., Bangalore, Biochemistry, 1964-67. Ramasarma, T., Lecturer.

During cold exposure of rats, the activities of oxidative enzymes in livers, such as, succinate oxidase, succinate dehydrogenase cytochrome oxidase, DPNH-neotetrazolium chloride (NT)-reductase and succinate NT reductase are increased. The levels of ubiquinone in livers are also increased by a block in its catabolism and also by an initial increase in its synthesis. The short term exposure to low pressure also brings about increased activities of oxidative enzymes but the synthesis of ubiquinone and cholesterol is enormously decreased.

Prog. Bichem. Pharmacol. 2 ; 1967.

612.39

985.44 Basu, Tapati. Studies on regulation of fat metabolism by adrenal hormones. Calcutta, Physiology. 1964-68. Mukherjee, S., Director, Indian Institute of Experimental Medicine, Calcutta,

612.397

986.45 Bhargava, Madhu Mitra Studies on intracellular components. Bombay, Atomic Energy Establishment, Trombay, 1964-67. Sreenivasan, A., Biochemistry & Food Technology Division, Atomic Energy Establishment, Trombay.

Aspartate aminotransferase enzymes in rat liver mitochondria and supernatant have been characterised. Lipoproteins of rat liver supernatant have been studied in fatty liver condition. An unidentified red fluorescent protein from this fraction has been purified and partially characterised.

612.39

987.46 Bir Bahadur Singh. A study on calcium metabolism with radioactive strontium with special reference to Osteomalacia. Banaras, Chemistry, 1965-67. F. Hosain, Reader in Nuclear Medicine.

612.3926

988.47 Chandrasekhara, Nanjundiah. Studies on vitamin C. Mysore, Central Food Technological Research Institute, Mysore, 1960-66. Srinivasan, M., Chairman, Discipline of Biochemistry, Central Food Technological Research Institute, Mysore.

Increments in dietary casein (not gelatin) increase ascorbic acid (AA) in rat liver and in urinary excretion. Gelatin does so only if supplemented with methionine and tryptophan. AA levels depressed by sulfa drugs are restored by dietary casein (20%). Increased dietary protein also enhances in vitro synthesis of AA from glucurono lactone. Oral or intravenous lactone does not put up AA levels in human beings, contrary to the report by Baker et al.

(1) Proc. Soc. Exp. Biol. Med. 112 ; 1963 : p. 827-830 ; and (2) Ind. Jour. Biochem. 2 ; 1965 : p. 44-46.

612.399

989.48 Cherian, M. George. Amino acid metabolism with special reference to proline and hydroxyproline. Kerala, Christian Medical College & Hospital, Vellore, 1964-67. Radhakrishnan, A.N., Assoc. Professor of Biochemistry, Christian Medical College & Hospital, Vellore.

The metabolism of hydroxyproline, specially in relation to its forms in the urine has been studied. Increased urinary excretion of hydroxyproline has been observed in malabsorption syndrome and in leprosy in reaction. A new glycopeptide of an unusual composition containing hydroxyproline and sarcosine among other amino acids, has been isolated from human urine.

Biochem. Biophys. Acta. 101 ; 1965 : p. 241-244.

612.396

990.49 Das, Sasadhar. Studies on carbohydrate metabolism in some clinical conditions. Calcutta, Physiology, 1965-68. Nath, R.L., Professor of Biophysics, School of Tropical Medicine, Calcutta.

612.396

991.50 Datta, Tapaskumar. Effects of dietary protein in experimental animals and men. Calcutta, Physiology, 1962-67. Bagchi, K., Professor, All India Institute of Hygiene & Public Health, Calcutta.

612.398

992.51 Ghosh, Arunkumar. Studies on iron absorption in pregnant women in different nutritional studies. Calcutta, Medicine, 1964-67. Ghosh, J. J., Professor of Biochemistry.

612.3924

993.52 Joshi, S. V. Irradiation studies with synthetic polyamino acids. Bombay, Indian Cancer Research Centre, Bombay. 1964-67. Korgaonkar, K. S., Head of the Biophysics Group, Indian Cancer Research Centre, Bombay.

Studies are being carried out with dilute aqueous solutions of synthetic polyamino acids using Langmuir-Adam type trough and surface balance system and ultraviolet spectrophotometry to gain better understanding of the structural and conformational aspects in proteins and changes brought about by Co^{60} r-irradiation in them.

612.398

994.53 Katyal, Sikandar Lall. Effect of dietary proteins on atherosclerosis. Delhi, Biochemistry, 1963-67. Subramanian, T. A. V., Professor and Head of the Department of Biochemistry, Patel Chest Institute, Delhi.

Groundnut protein and casein at various levels have been fed to rats and lipid changes in liver, adipose, aorta and serum observed. The lipid composition changes include cholesterol and cholesterol esters, triglycerides, various phospholipids and fatty acid composition of some of these components. Labelled precursors have been used to study the turnover of cholesterol and phospholipids.

612.398

995.54 Krishnan, Nagaswamy. Metabolism of water soluble vitamins. I. I. S., Bangalore, Biochemistry, 1966-70. Appaji Rao, N., Lecturer.

The syndrome South Indian paraplegia is characterised by polyneuropathy in both adult men and women. The etiology of this syndrome is unknown. It is proposed to investigate the levels of thiamine, riboflavin, folic acid and vitamin B_{12} in both cerebrospinal fluid and serum. Protein patterns and impaired cyanide metabolism will also be studied.

612.399

996.55 Malhotra, H. C. Lipid metabolism in experimental tuberculosis. Delhi, Biochemistry, 1963-67. Subramanian, T. A. V., Professor and Head of the Department of Biochemistry, Patel Chest Institute, Delhi.

612.397

997.56 Mehta, Nitin Jamnaprasad. Further studies in the relationship between vitamin B_{12} and pantothenic acid, and cholesterol metabolism. Bombay, Topiwala National Medical College, Bombay, 1964-67. Rindhani, T. H., Dean, Topiwala National Medical College, Bombay.

The effect of atherosclerosis and hypocholesterolemic agents on the blood and tissue levels of vitamin B_{12} and pantothenic acid is under study. A study of the lipid deposition on the aortic walls, and protein metabolism during the deficiency of each of these vitamins will also be undertaken.

612.399

998.57 Murali, D. K. Studies in amino acid metabolism. Mysore, Christian Medical College & Hospital, Vellore, 1964-67. Radhakrishnan, A. N., Assoc. Professor of Biochemistry, Christian Medical College & Hospital, Vellore.

The metabolism of tryptophan, especially, in the intestine is being studied with special reference to the formation of serotonin—decarboxylase—and its precursor 5-hydroxytryptophase—hydroxylase. Procedures for the assay of these enzymes have been developed using C^{14} and H^{3}—labelled substrates.

612.39

999.58 Murty, Sreerama H. Fatty acid metabolism in experimental tuberculosis. Delhi, Biochemistry, 1964-67. Subramanian, T. A. V., Professor and Head of the Department of Biochemistry, Patel Chest Institute, Delhi.

612.397

1000.59 Naqvi, Saida. Biochemical effects of irradiation. Delhi, Biochemistry, 1963-67. Subramanian, T. A. V., Professor and Head of the Department of Biochemistry, Patel Chest Institute, Delhi.

The effect of 60 Co-gamma irradiation on tissue lipids of rats, with and without prior administration of S-β aminoethyliso-thiouronium bromide hydrobromide (AET), has been studied. Regulatory enzymes of hepatic lipogenesis are under investigation after irradiation with and without prior administration of (AET).

612.397

1001.60 Salaskar, R. H. Conditions of urine and blood in certain diseases. Bombay, Wilson College Bombay, 1962-67. Airan, J. W., Principal, Wilson College, Bombay.

Studies are being carried out in patients suffering from (i) jaundice, (ii) diabetes, (iii) arthritis and (iv) renal diseases. In all the diseases, serum protein behaviour is being studied by paper electrophoresis. Serum lipo-and glyco-proteins have been studied. Transaminases (GOT & GPT), and phosphatase (alkaline) activity have been studied in jaundice patients. Rheumatoid arthritis cases have also been studied using R. A. test and serum proteins, by electrophoresis.

612.398

1002.61 Shah, Varsha. Studies on some aspects of metabolism of connea and lensin protein deficiency in albino rats. Calcutta, Biochemistry, 1966-68. Haldar, K., Assoc. Professor of Biochemistry, All India Institute of Hygiene & Public Health, Calcutta.

612.398

1003.62 Shankaran, Ramachandra. Carbohydrate metabolism in experimental tuberculosis. Delhi, Biochemistry, 1963-67. Subramanian, T. A. V., Professor and Head of the Department of Biochemistry, Patel Chest Institute, Delhi.

Earlier workers have observed low glycogen content, low glucose tolerance and increased gluconeogenesis in tuberculosis. Cord factor—a toxin—has been prepared from tubercle bacillus and this has reproduced the above changes. Low vitamin C level and low insulin-like activity have been found in tuberculosis. Reduced food intake observed in tuberculosis also reduces glycogen content.

612.396

1004.63 Shenolikar, Indushekhar Siddheshwar. Studies in calcium metabolism. Karnatak, Nutrition Research Laboratories, Hyderabad, 1963-66. Gopalan, C., Director, Nutrition Research Laboratories. Hyderabad.

The analysis of the mineral composition of skeletons belonging to low socio-economic group of Indian subjects subsisting on low intakes of calcium and other nutrients has been carried out. Experimental studies on animals to elucidate the interrelationship between protein and calcium and the metabolic pattern of the mineral using radioactive calcium—Ca^{45}—are in progress.

612.3926

1005.64 Srinivasan, Coimbatore Nagarajan. Metabolism of serum lipids. Delhi, Patel Chest Institute, Delhi, 1966-68. Subramanian, T. A. V., Professor and Head of the Department of Biochemistry, Patel Chest Institute, Delhi.

Total serum lipids and beta lipoprotein lipids have been fractionated and identified. A study of the changes in these lipids on hepatectomy and the effect of puromycin, actinomycin, orotic acid and certain hormones, such as, ACTH, cortisone, diethyl stilbesterol etc., is in progress. These studies are being carried out to throw light on the origin and biosynthesis of beta lipoproteins.

612.397

1006.65 Srivastava, Kaushal Kishore. Biochemistry of stress. Delhi, Patel Chest Institute, Delhi, 1965-67. Subramanian, T. A. V., Professor and Head of the Department of Biochemistry, Patel Chest Institute, Delhi and Kartar Singh, Director, Defence Science Laboratory, Delhi.

The single moderate dose of alcohol interferes in glucose tolerance and the same dose, if given for a month, results in the infiltration of glycogen in liver of white rats. The enzymatic processes associated with glucose and glycogen metabolism are being investigated to explain this phenomena.

612.396

1007.66 Thackare, Rajaninath Dattatraya. Some aspects of nicotinic acid metabolism in health and disease. Bombay, Seth G. S. Medical College, Bombay, 1959-67. Chitre, R. G., Professor (Retd.), Seth G. S. Medical College, Bombay.

The research deals with the nicotinic acid metabolism in anaemias with special reference to the involvement of pyridine nucleotides. It has been observed that in different types of anaemias, the aetiological factors are varied and as such it is likely that the role of pyridine nucleotides may also be of varied type. This aspect is being elucidated along with other contributory factors, such as, the role of iron, copper etc., in anaemias.

612.392

1008.67 Vasantgadkar, Prabhakar Sadashiv. Studies on protein metabolism with reference to nitrogen constituents of urine in relation to diet. Poona, Nutrition Research Laboratories, Hyderabad, 1960-66. Tulpule, Purushottam Gopal, Nutrition Research Laboratories, Hyderabad.

The distribution of nitrogenous compounds in urine of normal and kwashiorkor (protein deficient) children fed on animal and vegetable protein diets has been studied. Low values for area N as percentage of total N and relative increase in ammonia N, amino N and undetermined N have been observed at the height of the disease. The pattern of the urinary N returns to normal much earlier after treatment with animal protein diets than with the vegetable protein diets.

(1) Amer. Jour. Clin. Nutr. 12 ; 1963 : p. 150-156; (2) Jour. Postgrad. Med. 9 ; 1963 : p. 1-15 ; and (3) Ind. Jour. Med. Res. 52 ; 1964 : p. 1111-1119.

612.398

Lymphatic, Endocrine & Exocrine Systems

1009.68 Bhattacharyya, Sasanka Sekhar. Thyroid gland relationship. Calcutta, Physiology, 1963-67. Mukherjee, A. K., Professor of Physiology, Presidency College, Calcutta.

612.41

1010.69 Chaudhury, Suman. Studies on anterior pituitary with reference to thyrotropin and adrenocosticotropin activity. Calcutta, Medicine, 1964-66. Mukherjee, Sarashiranjan, Head of the Department of Experimental Physiology, S. S. K. M. Hospital, Calcutta.

612.492

1011.70 Talwalkar, Vijaya Ramesh. Biochemical studies on psoralen. Bombay, Central Drug Research Institute, Lucknow, 1964-67. Krishnamurti, C. R., Scientist-in-Charge, Division of Biochemistry, Central Drug Research Institute, Lucknow.

The metabolism of psoralen has been studied with reference to its toxicity in rats and rabbits. The metabolic products excreted in urine and their fluorescent characteristics have also been analysed. Identification of the products is in progress. The site of metobolism is also proposed to be investigated.

612.461

Reproductive System & Developmental Periods

1012.71 Chaudhuri, Dipali. Observations on the human and experimental vatofactal membrance chord and ameniotic field in normal and abnormal pregnancy. Calcutta, Medicine, 1964-67. Bhattacharyya, K., Professor of Pathology, Nilratan Sircar Medical College, Calcutta.

612.63

1013.72 Gupta, Reba. Physiological changes of reproductive system after intrauterine contraceptive device. Calcutta, Medicine, 1965-67. Banerjee, Srimanta Kumar, Professor of Gynecology, Medical College, Calcutta.

612.62

1014.73 Nag, Rathindranath. Biological, cytological, blood group and clinical studies in relation to ovulation and fertilisation in female. Calcutta, Medicine, 1966-68. Banerjee, P. K.

612.62

1015.74 Subbulakshmi, G. Studies on pregnancy and lactation. Baroda, Foods & Nutrition, 1965-67. Rajalakshmi, R., Reader.

Previous studies have suggested a negative balance between dietary intake and milk secretion of vitamin C. Longitudinal studies have been carried out on 40 women from the last trimester of pregnancy to six months of lactation to investigate this phenomenon further.

612.664

Motor & Integumentary System

1016.75 Taskar, Kusum Dinkar. Biochemical studies on striated muscle. Poona, Nutrition Research Laboratories, Hyderabad, 1961-66. Tulpule, Purushottam Gopal, Nutrition Research Laboratories, Hyderabad.

The studies have been conducted on albino rats. Quantitative changes in the protein fractions of the red and white muscle fibres have been studied at different stages after birth. Dietary deficiency of protein produced changes in the intracellular scarcoplasmic proteins that affect energy transfer reactions in the muscle.

(1) Biochem. Jour. 92 ; 1964 : p. 391-398 ; and (2) Ind. Jour. Biochem. 2 ; 1965 : p. 178-182.

612.744

Nervous System

1017.76 Das, Madhusudan. Effect of temperature on nerve conduction in man. Calcutta, Medicine, 1964-67. Pajutal, A. S.

612.81

1018.77 Vaddadi, R. R. Hormones and nerve muscle functions. Bombay, Topiwala National Medical College, Bombay, 1963-68. Rindani, T. H., Dean, Topiwala National Medical College, Bombay.

612.8

1019.78 Dalal, Prafulchandra Maganlal. Studies in cerebral circulation. Bombay, Topiwala National Medical College, Bombay, 1959-70. Rindani, T. H., Dean, Topiwala National Medical College, Bombay.

The study aims at better understanding of the physio-pathologic mechanisms in disorders of cerebral circulatory functions.

612.32

1020.79 Ghoshdastidar, Amares. Neurophysiology of cerebral cortex. Calcutta, Medicine, 1962-67. Maiti, A. K., Head of the Department of Physiology.

612.825

1021 80 Goswami, Manoranjan. Neurochemical analysis of the functions of neuronally isolated cerebral cortex. Calcutta, Medicine, 1965-67. Maiti, A. K., Head of the Department of Physiology.

612.825

1022.81 Pal, Bijaykumar. Studies on brain microsomes. Calcutta, Biochemistry, 1964-70. Ghosh, J. J., Professor.

612.822

1023.82 Prasannan, Kailasathu Govindapillai. Studies on carbohydrate metabolism in brain and specialized tissues. Kerala, Biochemistry, 1963-66. Subrahmanyam, K., Professor and Head of the Department of Biochemistry, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry.

Glycogen levels in the brain of fasting rats are increased by 124 % when treated with both glucose and insulin but unaffected by only one of them. The resynthesis of glycogen in cerebral cortical slices of the rat, demonstrated for the first time, is diminished in diabetes and increased by insulin and adrenalectomy.

(1) Ind. Jour. Biochem. 2 ; 1965 : p. 94 ; (2) Ind. Jour. Med. Res. 51 ; 1963 : p. 703 and 933 ; (3) ibid. 52 ; 1964 : p. 208 ; and (4) ibid. 53 ; 1965 : p. 1003.

612.822

1024.83 Ravindranathan Pillai, K. Glutamic acid metabolism in rat's brain. Baroda, Biochemistry, 1963-66. Ramakrishnan, C. V., Professor and Head of the Department.

Experiments have been carried out to study the effect of various supplements to a low protein diet, supplementation of vegetable and animal protein to a millet and cereal diet, inanition, and electro convulsive

shock on the behaviour and the glutamic acid metabolism in the rat brain.
612.822

Hygiene & Public Health

1025.84 Das, Krishnakumar. Industrial efficiency. Calcutta, Medicine, 1964-67. Rao, M. N., Professor, All India Institute of Hygiene & Public Health, Calcutta.
613.62

1026.85 Philip, Lois. The introduction and evaluation of counter measure programmes involving education in the reduction of accidents. Calcutta, Medicine, 1966-68. Chatterjee, N.
614.3

1027.86 Sen, Sailendranath. Health of steam engine crews. Calcutta, Medicine, 1963-67. Rao, M. N., Professor, All India Institute of Hygiene & Public Health, Calcutta.
613.6

1028.87 Sil, Anankumar. Study on social aspects of pulmonary tuberculosis in the urban and rural population with special reference to contact. Calcutta, Medicine, 1965-68. Sen, Prafulla Kumar, Head of the Department of the Diseases of Chest.
614.542

Medical Geography

1029.88 Khan, Jamil A. Social and environmental factors affecting the incidence and distribution of some communicable diseases in the Ganga Yamuna Doab : A study in medical geography. Aligarh, Geography, 1966-69. Shafi, M., Professor and Head of the Department.
614.42

1030.89 Khan, Zahoor Ali. The distribution of some nutritional deficiency diseases in the Central Doab. Aligarh, Geography, 1965-68. Shafi, M., Professor and Head of the Department.
614.42

1031.90 Sharma, Jagadish Prasad. Medical geography. Banaras, Geography, 1965-67. Ujagir Singh, Reader.

The health of man is very much a product of his variable environmental conditions. The aim of the work is to show that there are disease regions—where the association of diseases is distinctive, to delimit them positionally and to analyse their underlying causes in the light of both geographical and medical environments. The study of medical geography is considered to be the foundation of 'protective medicine' and the 'medicine of tomorrow'.

614.42

Epidemiology

1032.91 Mukherji, Ranabir. A study of epidemiology of refractive errors among college students of Calcutta with particular reference to hereditary and socio-economic factors. Calcutta, Medicine, 1966-69. Sil, S. C., Professor (Retd.), All India Institute of Hygiene & Public Health, Calcutta.

614.49

1033.92 Powar, Prataprao Laxmanrao. Epidemiologic study of a thousand bedded teaching hospital. Nagpur, Medical College, Nagpur, 1964-67. Ramadwar, D.K., Professor of Preventive & Social Medicine, Medical College, Nagpur.

An operational study has been undertaken to assess the actual utilization of beds of the hospital and its functional effectiveness with regard to public health. The method involved is of the retrieval of available data, its multivariant analysis and a construction of epidemetric model for prediction and periodic evaluation of the optimal utilization of the hospital resources.

614.49

1034 93 Ray, Anilkumar. An epidemiological study of hospital in-patients with a view to identifying major preventabtle factors in the diseases from which they suffer. Calcu ta, Medicine, 1965-68. Sen, Mukta, Director, All India Institute of Hygiene & Public Health, Calcutta.

614.49

Therapeutics & Pharmacology

Pharmaceutical Chemistry

1035.94 Gurusiddappa, Dhaplapur Mahalingappa. Synthesis of organic compounds of possible cytotoxic activity. Bombay, Haffkine Institute, Bombay, 1965-67. Deliwala, C.V., Asstt. Director, Haffkine Institute, Bombay.

In a search for potential anti-cancer agents, a number of Schiff bases and hydrazides have been synthesised by the condensation of various benzaldehyde nitrogen mustards with different aromatic amines and hydrazides. Some compounds have displayed antitumor activity against Dunning Leukemia, Walkar-256 Carcinosarcoma, Lymphoid Leukemia and Walker-256 (intramuscular).

615.19

1036.95 Israili, Amil Hasan. Standardisation of some of the indigenous drugs. Aligarh, Chemistry, 1966-69. Qureshi, M. Mohsin, Reader.

615.19

1037.96 Kulkarni, Bhaskar Shridhar. Chemotherapy of tuberculosis: Synthesis of thiazole compounds as possible antitubercular agents. Bombay, Haffkine Institute, Bombay, 1959-66. Deliwala, C. V., Asstt. Director, Haffkine Institute, Bombay.

In a search for potential antitubercular agents, a series of thiocarbanilides and alkoxy phenylthioureas bearing a thiazole residue in one or both of the phenyl rings have been synthesised. A number of symmetrical thiazolylthioureas have also been synthesised. Some compounds have shown activity comparable to isoniazid.

615.19

1038.97 Miglani, Bhagwan Dass. Investigation on Arisaema tortuosum. Panjab, Pharmacy, 1963-68. Gaind, K. N., Professor and Head of the Department.

A systematic investigation has been undertaken on Arisaema tortuosum. It shall comprise isolation of various active principles, study of pharmacological actions, and formulation of the active principles.

615.19

1039.98 Petigara, Rameshchandra Balubhai. Synthesis of organic compounds having possible analgesic and C. N. S. activity. Bombay, Haffkine Institute, Bombay, 1965-67. Deliwala, C. V., Asstt. Director, Haffkine Institute, Bombay.

A number of 3, 4, 5-trimethoxyphenyl aminoalkyl ketone, amino alcohol and amide derivatives have been synthesised as possible central nervous system depressants. A few compounds have shown encouraging activity in primary screening on experimental animals.

615.19

Synthetic Drugs

1040.99 Dikshit, Bipin Bihari. A study of synthesis and pharmacology of some Mannich bases. Banaras, Pharmaceutics, 1965-67. G. B. Singh, Reader.

The Mannich bases of hydantoin, pseudothiohydantoin and some of its isostears have been prepared. Some of the barbiturates have also been employed as acid components in the preparation of their Mannich bases. Their pharmacological screening is in progress.

615-31

1041.100 Ganatra, Ramaniklal Dirajlal. Radiopharmaceuticals used for tumor scanning. Bombay, Seth G. S. Medical College, Bombay, 1965-67. Sheth, U. K., Professor and Head of the Department of Pharmacology, Seth G. S. Medical College, Bombay.

A study of distribution of various radioactive pharmaceuticals likely to localise in malignant tumors has been made by techniques of linear scanning and rectilinear scanning. Vitamin K analogue, tetrasodium 2-methyl 1:4 naphthohydroquinone diphosphate, has been found to localise in malignant tumors in experimental animals and in patients.

615.31

1042.101 Ghosh, Syamapada. Role of certain steroids in the genesis of testicular and prostate cancer. Calcutta, Medicine, 1965-67. Mukherjee, B., Director, Cancer Research Institute, Calcutta.

615.31

1043.102 Jogi Bhukta, Manda. Synthetic drugs. I. I. S., Bangalore, Organic Chemistry, 1963-68. Harihara Iyer, Balkrishna, Professor.

In a quest for newer and more effective antituberculous agents than those currently in use, aminoacid conjugates α and β-naphthoxyacetic acids as well as α and β-naphthoxypropionic acids, their esters, hydrazides and aldehyde condensation products have been synthesised for studying their activity against Mycobacterium tuberculosis $H_{37}R_{v}$.

615.3137

1044.103 Lodh, Santibhusan. Amino acid hydramides as possible anti-cancer agents. Calcutta, Biochemistry, 1964-67. Pal, P. R.

615.31

1045.104 Majumdar, Mrinalkanti. Studies on biosynthesis of nicomycin Calcutta, Biochemistry, 1963-67. Majumdar, S. K., Reader in Food Technology, Jadavpur University.

615.31

1046.105 Padmanabhan, Srinivasan. Synthesis and structure determination of new steroid analogues of medicinal interest. Panjab, Pharmacy, 1964-68. Harkishan Singh, Reader in Pharmaceutical Chemistry.

The synthesis of 4, 6-diaza-A, B-bish-4-aza-A-homocholest-4a-ene-3, 6-dione and 3-aza-A-homocholest-4a-ene-4, 6-dione has been achieved. The synthesis of another aza analogue, 3, 7a-diaza-A, B, bishomocholest-4a-ene-4, 7-dione has also been completed. 7-ketodiosgenin acetate has been converted into B-homoaza analogue. 7a-aza-B-homospirost-5-ene-7-one, and further work is in progress to prepare some pregnane analogues from this key compound. It is proposed to get these compounds screened for biological activities.

Chem. & Ind. 3 ; 1967 : p.118-119.

615.314

1047.106 Parashar, Veerendra Vinayakumar. Synthesis and structure determination of potential anti-cancer steroid analogues. Panjab, Pharmacy, 1964-68. Harkishan Singh, Reader in Pharmaceutical Chemistry.

The synthesis of 3, 17a-diaza-A, D-bishomoandrost-4a-ene-4, 17-dione has been accomplished through different routes. Many a azasteroid analogues have been obtained during these syntheses. Certain other steroid analogues in androstane and pregnane series are being synthesised. The new steroids will be analysed for biological activities. The main aim is to obtain compounds which may have anti-cancer activity.

Tet. Let. 9 ; 1966 : p.983-984.

615.314

1048.107 Prasad, Kari Umamaheswara. Synthetic drugs : N-pyridoyl di- and tri-peptide derivatives as possible synthetic tuberculostats. I. I. S., Bangalore, Organic Chemistry, 1960-67. Harihara Iyer, Balkrishna, Professor.

In a quest for new antituberculosis agents, some di-and tri-peptide conjugates of pyridine carboxylic acids, their hydrazides and 1, 2-disubstituted hydrazine derivatives have been synthesised and tested for their in vitro tuberculostatic activity. Out of the 96 compounds thus synthesised and screened, 11 compounds have shown varying degrees of inhibition of the growth of Mycobacterium tuberculosis, $H_{37} R_v$.

(1) Jour. Ind. Chem. Soc. 42 ; 1965 : p. 9-14 ; and (2) ibid. 43 ; 1966 : p. 784-786.

615.3137

1049.108 Raisinghani, Padma Bhagwandas. Study of anti-infective drugs. Bombay, Chemical Technology, 1964-67. Khorana, M. L., Professor.

Anti-infective properties of a number of 8-hydroxyquinoline derivatives have been evaluated. Further work on the mode of action of these drugs is in progress.

615.31

1050.109 Razdan, Bal Kishan. Synthesis and study of tropine analogues. Panjab, Pharmacy, 1965-68. Harkishan Singh, Reader in Pharmaceutical Chemistry.

It is believed that the oxime of tropinone, which is meso itself, may have chiral axis and thus be racemic.

This has been confirmed by resolving (—) — tropinone oxime. The resolution of other enantiomer of tropinone oxime and a study of the absolute configuration are in progress. All this has eventual bearing on the programme of preparing synthetic analogues from tropinone which may show one or the other kind of biological activity. The racemic oxime has already been submitted to Beckmann rearrangement. The lactum thus obtained has been reduced and various derivatives of amine synthesised.

Tet. Let. 28 ; 1966 : p. 3243-3245.

615.31

1051.110 Sankaranarayana Iyer, Krishnaiyer. Synthetic drugs. I.I.S., Bangalore, Organic Chemistry, 1963-68. Harihara Iyer, Balkrishna, Professor.

Some dipeptide conjugates of pyridine carboxylic acids, their hydrazides, and 1, 2-disubstituted hydrazine derivatives have been synthesised and tested for their in vitro tuberculostatic activity with a view to prepare new antituberculosis compounds. The synthesis of N-pyridoyl-p-aminosalicylic acids and their aminoacid conjugates is in progress.

615.3137

1052.111 Varshneya, Nirupma. Studies in some synthetic drugs. Aligarh, Chemistry, 1966-69. Ahmad, S. R.

615.31

1053.112 Vijjan, Virendra Kumar. Investigation on synthetic drugs. Banaras, Pharmaceutics, 1966-68. G. B. Singh, Reader.

Amino alkylation of nicotinamide and some heterocyclic systems has been carried out with acidic imino group by using formaldehyde and various secondary amines. Amido methylation with salicylamide and 3 : 5 dibromo salicylamide has also been carried out by condensing their N-methylol with active hydrogen components in acidic media.

615.3142

Drugs of Vegetable Origin

1054.113 Chaudhuri, Sadhthi. Agglutinating antibody in Indian plants. Calcutta, Medicine, 1964-67. Sen, N. K., Director, Forensic Sciences Laboratory, Calcutta.

615.32

1055.114 Chawla, Amrik Singh. Investigation of Indian Erythrina species. Panjab, Pharmacy, 1965-68. Harkishan Singh, Reader in Pharmaceutical Chemistry.

The work on the isolation of nitrogenous and non nitrogenous organic constituents of the Indian Erythrina species is in progress. The structure elucidation and comparison of the isolated principles with the known constituents of the Erythrina species will be carried out. It is hoped that some of the entities will be of biological interest.

615.32332

1056.115 Chopra, Kulwant Singh. Investigation of active principles of Abutilon indicum Linn., family Malvaceae. Panjab, Pharmacy, 1964-67. Gaind, K. N., Professor and Head of the Department

A phytochemical investigation of the stem and leaves of Abutilon indicum has revealed the occurrence of three phenolic glycosides, phytosterol xanthophyll, free phenolic acid, and mucilagenous substance. Mild antibacterial activity has been observed in the alcoholic extract of stem. The mucilage may prove interesting for pharmaceutical purposes as suspending agent for indiffusible drugs, or as emulsifying agent or binding agent in tablet manufacture.

615.32317

1057.116 Deshmukh, Vijaykumar Keshav. Pharmacognostical studies of some Indian medicinal plants. Nagpur, Botany, 1965-67. Kajale, L.B., Professor and Head of the Department.

A pharmacognostical study of marketed crude drugs is important for their proper identification ensuring their quality and purity. The morphological, anatomical and chemical work restricted to finding out percentage extractives to different solvents, ash value and acid insoluble ash is in progress in the case of Helecteris isora, Woodfordia fruticosa, and Celosia argentia.

615.32

1058.117 Garg, Vinod Prakash. Studies on anti-diabetic principles of some indigenous medicinal plants, Tinospora cardifolia, Ficus glaomeratia and Caseria esculenta. Vikram, Gandhi Medical College, Bhopal, 1966-70. Verma, S. C. L., Reader in Pharmacology, Gandhi Medical College, Bhopal.

615.32

1059.118 Krishnaiah, Kolavennu Venkata. Control of metabolism of isoprenoid compounds. I. I. S., Bangalore, Biochemistry, 1964-67. Ramasarma, T., Lecturer.

The synthesis and concentration of cholesterol have been depressed by feeding ubiquinone-9 to rats. The cholesterol depressing drug, α-p-chlorophenoxy isobutyrate has increased liver ubiquinone concentration and hence its action has been considered indirectly by way of increasing liver ubiquinone. A secondary block at cyclisation of squalence has been demonstrated in cholesterol feeding.

615.321

1060.119 Krishna Moorthy, N. Chemical and pharmacological studies of Orthosiphan stamineus Berth. Banaras, Pharmaceutics, 1966-68. S. Prasad, Professor and Head of the Department and Basu, N. K., Kasturba Medical College, Manipal.

615.32

1061.120 Mitra, Roma. Pharmacognostical study of 'Rasna', Vanda roxburghii. Banaras, Pharmaceutics, 1965-66. S. Prasad, Professor and Head of the Department.

Pharmacognostical studies on the stem, root and leaves of Vanda roxburghii have been made. The macro-and the microscopical studies of these plant parts have also been investigated in detail. The aerial and the clinging roots possess velamen, exodermis and endodermis besides the usual root structure. The leaves are characterised by a fibrous hypodermis and by the presence of raphides and volatile oil drops in the mesophyll parenchyma.

615.321

1062.121 Mukherjee, Sujeet Kumar. Studies in pharmaceutical formulation. Banaras, Pharmaceutics, 1966-68. Srivastava, G.P., Reader.

It has been confirmed that Casearia esculenta Roxb. possesses anti-diabetic properties and that the aqueous extract of the drug, C. esculenta roots, reduces the blood sugar concentration in rabbits. An attempt is being made to isolate the blood sugar reducing factor and formulate it in suitable dosage form in which it would best manifest its therapeutic activity. A crystalline factor having a melting point above 260°C has been obtained. But it is different from the one obtained earlier by Basu and Choudhury with the melting point 182°C. Thus the work to find the active constituent is still in progress.

615.32

1063.122 Parameswaran, V. K. Studies on Smilax China Linn. and Adhatoda vasaka. Bombay, Chemical Technology, 1965-68. Khorana, M. L., Professor.

Studies on Smilax China Linn. and Adhatoda vasaka are in progress. A volatile oil from the former and non-nitrogenous principle from the latter have been isolated. Their chemical composition is being determined.

615.32

1064.123 Ramachandran Nair, Arakuzha Gopalan. Chemistry of plant products : Chemical investigation of Indian plant drugs. Kerala, Chemistry, 1964-67. Sankara Subramanian, S., Reader in Chemistry, Jawaharlal Institute of Postgraduate Medical Education & Research, Pondicherry.

Work on South Indian plant drugs with special reference to flavonoids has been done. Drugs from lichens have a great future and a study of South Indian lichens is in progress.

(1) Ind. Jour. Chem. 2 ; 1964 : p. 81, 338 and 378 ; (2) Curr. Sci. 33 ; 1964 : p. 211, 336, 401 and 431 : and (3) ibid. 34 ; 1965 : p. 246.

615.32

1065.124 Sapru, Hreday Nath. Chemical and pharmacological studies on Cryptostegia grandiflora Linn. (Asclepidiaceae). Banaras, Pharmaceutics, 1965-66. S. Prasad, Professor and Head of the Department.

A liquid alkaloid has been isolated in pure state from Cryptostegia grandiflora R. Br., family Asclepiadaceae. On the basis of I. R. U. V., and N. M. R. spectra, in addition to conventional procedures, it has been assigned to the pyridine group of alkaloids. The alkaloid manifests significant hypotensive and hypocholesterolaemic action. In effective doses, it does not exert any toxic action.

615.32372

1066.125 Satnam Singh. Investigation of the active principles of Euphorbia prostrata. Ait., family Euphorbiaceae. Panjab, Pharmacy, 1964-67. Gaind, K. N., Professor and Head of the Department.

Three of the sterols have been isolated in crystalline form. Anamosphons glycoside has also been isolated and one of the sterols identified. The glycone part of the glycoside has also been identified. A crystalline phenol having strong antibacterial activity has been isolated. The study of the chemical nature of these constituents is envisaged. Their effectiveness in piles is being tested.

615.32395

1067.126 Wasudeva, J. K. Studies in biochemical pharmacognosy of Indian medicinal plants. Panjab, Biochemistry, 1966-69. Sareen, K. N., Professor and Head of the Department.

It is intended to lay particular emphasis on metabolic studies so as to increase the drug content of the medicinal plants.

615.32

1068.127 Jayaram, H. N. Metabolism of mycobacteriae. I. I. S., Bangalore, Pharmacology Laboratory, 1964-68. Sirsi, M., Professor and Ramakrishnan, T., Asstt. Professor.

Since asparagine is the preferred amino acid for the growth of Mycobacterium tuberculosis, it is of interest to study the metabolism of asparagine in this organism Aspartic acid metabolism gives rise to three essential amino acids lysine, threonine, methionine and isoleucine. A study of the enzymes involved in the initial steps of metabolism upto homoserine has been undertaken.

615.32992

1069.128 Khorana, Saroj. Studies on Aspergillus fumigatus. Delhi, Patel Chest Institute, Delhi, 1965-67. Subramanian, T. A. V., Professor and Head of the Department of Biochemistry, Patel Chest Institute, Delhi.

Mycelial lipids from *Aspergillus fumigatus* 1028 (ATCC) have been isolated, characterised, and quantitized. The kinetics of the incorporation of labelled precursors and the effect of antifungal antibiotic, Amphotericin B on lipid metabolism of Aspergillus fumigatus are under study. The biosynthesis of lecithin and phosphatidyl ethanolamine will be undertaken.

615.32925

1070.129 Majumdar, Mrinal Kanti. Studies on the biosynthesis of Neomycin. Jadavpur, Food Technology & Biochemical Engineering, 1963-67. Majumdar, S. K., Reader in Microbiology.

The effects of minerals on the production of Neomycin in streptomyces fradiae have been studied. As Neomycin complex contains three components, a method has been developed to separate and estimate them. The effects of carbon and nitrogen on the production of these components have also been studied.

Appl. Microbiol. 13 ; 1965 : p. 190-193.

615.32992

1071.130 Narasimha Murthy, Sikha Venkata Krishna. Studies on antibiotics : Antibiotics of Malbranchea pulchella. I. I. S., Bangalore, Biochemistry, 1966-70. Narasimha Rao, P. L., Asstt. Professor.

The substances interfering in the iodometric assays of broth samples are being characterised and synthesised. The isolation, purification, chemical and biological properties of A and B malbranchins and two antibiotics produced by the organism are under study.

615.329

1072.131 Samarth, Sudhishchandra Shripad. *Pharmacological studies on metabolites from soil microorganisms. Baroda, Pharmacology, 1965-67.* Amin, A. H., *Director of Research, Alembic Chemical Works Co. Ltd., Baroda.*

The work involves pharmacological evaluation of certain groups of antibiotics and their degradation products. These degradation products are obtained by chemical means and also by action of certain microorganisms on some of these antibiotics. The work also involves the study of metabolites formed in such biochemical transformations.

615.329

1073.132 Sani, Brahmakulam Porinchu. Antibiotic principles from Garcinia morella. I. I. S., Bangalore, Biochemistry, 1962-67. Narasimha Rao, P. L., Asstt. Professor.

A new crystalline antibiotic, now designated neomorellin, m. p. 114-5° (C_{33} H_{38} O_6) has been isolated from the seed coat of Garcinia morella. Its structure has been tentatively established. Neomorellin is active against several gram positive bacteria besides possessing antiprotozoal activity. Its toxicity, histopathological, haematological, pharmacodynamic and in vivo studies have been carried out and a new method for assessing antiprotozoal activity has been standardised.

Ind. Jour. Exp. Biol. 4 ; 1966 : p. 27.

615.329

1074.133 Sankaran, Lakshmanan. Antibiotics and chemotherapy. I. I. S., Bangalore, Biochemistry, 1965-69. Narasimha Rao, P. L., Asstt. Professor.

Attempts are being made to evolve a suitable chemotherapeutic agent for the treatment of vaccinia and influenza infections following the observations that benzyl isothiocyanate type of compounds display potent antiviral activity. The mechanism of action of such compounds vis-a-vis thiamine metabolism is being investigated.

615.329

1075.134 Santhanam, Krishnaswamy. Studies on plant antibiotics. I. I. S., Bangalore, Biochemistry, 1962-67. Narasimha Rao, P. L., Asstt. Professor.

Characterisation of antimicrobial principles of Garcinia morella is in progress. The structures of the isomers α_1-and α_2-guttiferins C_{33} H_{36} O_8 from the seed coat have been established by chemical and physical methods and the structure-activity relationship has also been established. Beta-guttiferin from gamboge forms crystalline complexes with dimethyl formamide, dimethyl sulphoxide and tetrahydrofuran. Chemical and biological properties of γ-guttiferins are being elucidated.

615.329

1076.135 Sheik Allaudeen, H. Biosynthesis of isoleucine and valine in Mycobacterium tuberculosis H_{37} R_V. I. I. S., Bangalore, Pharmacology Laboratory, 1965-68. Ramakrishnan, T., Asstt. Professor.

Since no information is available regarding the biosynthesis of amino acids isoleucine and valine in pathogenic organisms, work has been undertaken to study the common enzymes of the parallel pathway in Mycobacterium tuberculosis H_{37} R_V. Since any interference with the biosynthesis affects the growth of the microorganism, the study may lead to ideal chemotherapeutic approach against tuberculosis.

615.32992

1077.136 Sundar Raj, C. V. Microbial metabolism : Genetic studies in M. smegmatis SN_2. I. I. S., Bangalore, Pharmacology Laboratory, 1964-69. Sirsi, M., Professor and Ramakrishnan, T., Asstt. Professor.

The development of drug resistance is a major problem in the attempt to eradicate tuberculosis by chemotherapy. The elucidation of the mechanism of this drug resistance at the nucleic acid level is being attempted. The genetic aspect of the study relates to some of the genetic markers which are associated with drug resistance on the chromosome of Mycobacterium smegmatis SN_2 and their mapping with reference to the genes for amino acid biosynthesis.

615.32992

1078.137 Vasavada, Bipinchandra Nandlal. Studies on the chemistry of mold matabolism. Bombay, Hindustan Antibiotics Ltd., Pimpri, 1963-68. Narsimhachari, N., Scientist, Hindustan Antibiotics Ltd., Pimpri.

The antibiotic activity of one of the mold metabolites, Atrovenetin, has been reported. The association of the antibiotic activity with the perinaphthenone structure has been established. Work on simpler derivatives is in progress. The comparative chemotaxonomy of the two penicillium species, P. atrovenetum and P. herquei is also being investigated by studying the nature of the metabolites under varying fermentation conditions. The metabolites from one culture are being used as substrates for the study of microbiological transformations.

615.32925

Enzymes

1079.138 Sanyal, Amitava. Studies on the enzymes of Vibrio cholerae. Jadavpur, Pharmacy, 1966-68. Chakrabarty, A. N., Reader in Medical Microbiology.

The research comprises isolation of principal enzymes and their characterisation, differentiation of different strains of V. cholerae on their enzymatic make-up, and the correlation of enzymatic differences with an antibiotic sensitivity pattern.

615.35

Hormonal & Endocrinal Drugs

1080.139 Basu, Sunilkumar. Immunologic effects of liver homogenous in animals. Calcutta, Medicine, 1964-67. Mitra, S. K., Professor, Fracture Department, Medical College, Calcutta.

615.367

Blood Serums

1081.140 Chakravorti, Samirchandra. Kinetic and molecular characterisation of antibody formation in primary and secondary immuno response. Calcutta, Medicine, 1965-67. Chaudhuri, S. N., Professor, Patel Chest Institute, Delhi.

615.37

1082.141 Jana, Sebha. Studies on the kinetics and the control of immunes. Calcutta, Medicine, 1965-67. Chaudhuri, Sachin, Professor, Patel Chest Institute, Delhi.

615.37

1083.142 Lizzy, Kappil Sebastian. Studies on antimicrobial agents. I.I.S., Bangalore, Biochemistry, 1964-68. Narasimha Rao, P. L., Asstt. Professor.

Factors influencing experimental cholera infections and attempts at chemotherapeutic control indicate that in vitro and in vivo potency of drugs is not correlated. It implies that the specific cholera toxin has to be neutralised in in vivo conditions, thus emphasising the need for antitoxin drugs.

615.375

1084.143 Mathew, Thankam. Immunological studies on animal viruses with special reference to pox group of viruses. Madras, Haffkine Institute, Bombay, 1963-67. Rao, S.S., Asstt. Director, Haffkine Institute, Bombay.

Cultivation of different mammalian pox viruses on different tissue culture systems has been carried out. Immunological studies on the antigenic structure and cross reactions among the mammalian and avian pox viruses by gel diffusion and immuno-electrophoresis are in progress. Studies on the haemagglutination and haemagglutination inhibition test of fowl pox and pigeon pox have also been conducted. The changes in the serum protein patterns of fowls immunized against fowl pox and the fractionation of immunoglobulin by agar electrophoresis and agar immuno-electrophoresis have also been studied.

Ind. Jour. Path. Bact. 9 ; July ' 66.

615.37

1085.144 Sen, Nandita. Biochemical studies in tyrosine toxicity in rats. Calcutta, Biochemistry, 1963-67. Ghosh, J. J., Professor.

615.373

Pharmacy

1086.145 Lalla, Jogender Kishinchand. Use of indigenous materials in the manufacture of tablets. Bombay, Chemical Technology, 1965-68. Baichwal, M. R., Reader.

The polymerization of glycerin is being carried out to prepare some derivatives useful in the coating of tablets.

615.43

Methods of Medication,

1087.146 Datta, Mukulchandra. Studies on certain biochemical aspects of blood during storage. Calcutta, Biochemistry, 1964-67. Chatterjee, J. B., Director, School of Tropical Medicine, Calcutta.

615.6507

1088.147 Maitra, Subhashchandra. Evaluation of studies on the effect of glucose administration on the free fatty acid level in plasma in different diseases. Calcutta, Medicine, 1965-67. Ghose, B. P., Head of the Department of Biochemistry, S.S.K.M. Hospital, Calcutta.

615.65

Pharmacodynamics

1089.148 Das, Sunilkumar. Comparative role of different anaesthesia on respiration. Calcutta, Physiology, 1964-67. Maitra, S. R., Professor and Head of the Department.

615.72

1090.149 Ghosh, Swapankumar. Studies on biochemical changes in microsomes during drug action. Calcutta, Biochemistry, 1964-67. Ghosh, J. J., Professor.

615.7

1091.150 Mukherji, Bishnuprasad. Studies on pharmacological actions of a new benzo-diazapine derivative mogadm.

Calcutta, Pharmacology, 1966-70. Dasgupta, S. R., Head of the Department.

615.7

1092.151 Patel, Dhanooprasad Gordhanbhai. Study of the effects of various drugs on the insulin antibodies. Baroda, Pharmacology, 1963-65. Gulati, O. D., Professor of Pharmacology, Medical College, Baroda.

Insulin antibodies have been induced in guineapigs by repeated injections of insulin with adjuvant. Serum insulin antibody titre has been estimated by complement fixation test and by rat diaphragm method. It has been found that hydrocortisone and anticancer agents reduce the antibody titre whereas oral hypoglycemic agents and male sex hormones have no effect. Oestrogens help quicker induction.

615.718

1093.152 Ray, Anjankumar. Histochemical and biochemical studies on some aspects of the action of addictive drugs. Calcutta, Biochemistry, 1964-67. Ghosh, J. J., Professor.

615.7

1094.153 Ray, Asitranjan. Pharmacological effects of some substances on the action of ovabin on cardiac and smooth muscles including a study of indigenous hypotency principles. Calcutta, Medicine, 1963-67. Chatterjee, M. L., Professor of Orthopedic Surgery, National Medical College, Calcutta.

615.71

1095.154 Ray, Suchandra. Biochemical studies on the action of drugs on brain. Calcutta, Biochemistry, 1963-67. Ghosh, J. J., Professor.

615.78

1096.155 Sriprakash, K. S. Mode of action of isoniazide (INH). I. I. S., Bangalore, Pharmacology Laboratory, 1965-69. Sirsi, M., Professor and Ramakrishnan, T., Asstt. Professor.

The studies undertaken relate to the mechanism of action of the antitubercular drug, isonicotinic acid hydrazide and INH resistance in Mycobacterium tuberculosis. It has been found that INH inactivates an inhibitor associated with nicotinamide adenine nucleotidase in the organism leading to the breakdown of all NAD in the system. During resistance, it appears that the inhibitor loses its sensitivity to INH. Work is in progress to devise drugs which can bind the altered inhibitor.

Comparative study of nicotinamide adenine dinucleotide nucleosidase from M. tuberculosis H_{37} R_v and pig brain. Ind. Jour. Biochem. 3 : 1966 : p. 211.

615.7

Thermotherapy

1097.156 Parulkar, Gurukumar Bhalchandra. Study of the technique, physiological effects and mechanism of cerebral damage during selective cerebral hypothermia. Bombay, Seth G. S. Medical College, Bombay, 1964-68. Sen, P. K., Professor, Seth G. S. Medical College, Bombay.

A method of selective cerebral hypothermia has been developed. The brain can be cooled to 20° C by using this method without causing brain damage. Physiological changes of brain cooling have been studied. The problem of irreversible brain damage at deep hypothermic levels is under investigation.

615 832

Electrotherapy & Radiotherapy

1098.157 Supe, S. J. Some studies in relation to radiation cataracts. Bombay, Indian Cancer Research Centre, Bombay, 1962-68. Korgaonkar, K. S., Head of the Biophysics Group, Indian Cancer Research Centre, Bombay.

A new type of nasopharyngeal applicator and improved beam-directing devices and collimators for eye applicators have been designed and dosimetry for them studied with a view to minimise incidence of radiation cataract during radiotherapy of cancers in head region. The variation of radiosensitivity of eye lens epithelium with radius will also be studied.

615.842

Toxicology

1099.158 Patel, N. T. Studies on cobra venom toxins. Bombay, Indian Cancer Research Centre, Bombay, 1962-67. Braganca, B. M., Asstt. Professor, Indian Cancer Research Centre, Bombay.

Cobra venom, Naja naja, has been separated into several biologically active components and their lethal properties have been studied. Two lethal components have been purified from the crude venom and some of the physical and chemical properties of these two toxins studied.

Can. Jour. Biochem. 43 ; 1965 : p. 915.

615.942

1100.159 Sambray, Yugalkishore Motilal. Studies on enzymes and enzyme inhibitors from cobra venom. Bombay, Indian Cancer Research Centre, Bombay, 1965-67.

Braganca, B. M., Asstt. Professor, Indian Cancer Research Centre, Bombay.

Studies deal with the purification of Ph. A and a protein inhibitor from cobra venom.

615.942

Medicine

Medical Microbiology

1101.160 Basu, Samiran. Studies on vibrio el for and typing of vibrio el for. Calcutta, Medicine, 1964-67. Mukherjee, S. M., Director, Indian Institute of Experimental Medicine, Calcutta.

616.014

1102.161 Gugnani, H. C. Extra-human sources of pathogenic fungi. Delhi, Patel Chest Institute, Delhi, 1964-68. Gupta, N. P., Asstt. Director, Patel Chest Institute, Delhi and Shrivastava, J. B., Director, National Institute of Communicable Diseases, Delhi.

Investigations of keratinophilic fungus flora of Indian soils have yielded valuable information regarding the ecology of certain species of dermatophytes and related fungi. Trichophyton simii has been found to be an important geophilic and zoophilic species. Studies on isolation of systemic fungi (pathogenic) from soil and animals are in progress.

616.015

1103.162 Kurup, P. V. Studies on fungi causing deep mycoses. Delhi, Medical Mycology, 1963-67. Gupta, N. P., Asstt. Director, Patel Chest Institute, Delhi and Randhawa, H. S., Senior Research Officer, Patel Chest Institute, Delhi.

Nocardia asteriodes, the most important causal agent of nocardiosis, has been isolated for the first time from 54 out of 504 soil samples collected from different parts of the country. Another important pathogenic species N. caviae has been found in 2 soil samples. Detailed studies have been conducted on the physiology, biochemistry, chemical composition and pathogenicity of Nocardia species for laboratory animals and chick embryo to devise a reliable system of classification.

616.015

1104.163 Pramanik, Manisha. Studies on the effects of viruses and cytotoxins on chromosome. Calcutta, Medicine, 1966-69.

Basumallik, K. C., Professor of Pathology, S. S. K. M. Hospital, Calcutta.

616.0194

1105.164 Rodrigues, Francis Michael. A study of the susceptibility of wild birds of Shimoga District, Mysore State, to infection with Kyasanur forest disease virus, with a view to determining their role in the epidemiology of the disease. Poona, Virus Research Centre, Poona, 1962-67. Anderson, Charles R., Director, Virus Research Centre, Poona.

This study has been undertaken to determine whether wild birds play a role in the spread of Kyasanur forest disease virus infection in the natural forest habitat of the virus. Experiments have been carried out to determine what species of birds develop viraemia of a titre high enough to be considered as possible sources of infection for ticks.

616.0194

1106.165 Saha, Mamata. Genetics studies in host-virus interrelationship. Calcutta, Biochemistry, 1963-67. Bose, S. K., Reader.

616.0194

Diseases of the Cardiovascular System

Heart

1107.166 Das, Parimalchandra. Study of carotid palscured left ventricular ejection time in rheumatic valve disease. Calcutta, Medicine, 1965-67. n. g.

616.12707

1108.167 Datta, Chinmay Kumar. Some biochemical changes in diagnosis of coronary thrombosis. Calcutta, Medicine, 1963-67. Basu, Archana, Professor of Physiology, N. R. S. Medical College, Calcutta.

616.123075

1109.168 Ghosh, Kalyankumar. Estimation of blood volume and body fluid in rheumatic heart diseases. Calcutta, Medicine, 1964-67. Chatterjee, R. N., Head of the Department of Cardiology, R. G. Kar Medical College, Calcutta.

616.12707

Blood Vessels

1110.169 Chakrabarti, Amiya Kumar. Effect of sympathectomy on peripheral blood vessels. Calcutta, Medicine, 1962-64. Sen, Amiyakumar, Head of the Department of Surgery.

616.13107

1111.170 Datta, Manoranjan. Evaluation of hyperbimaea in ischemic heart disease. Calcutta, Medicine, 1965-68. Bagchi, K., Professor, All India Institute of Hygiene & Public Health, Calcutta.

616.132

1112.171 Ghosh, Chhabirani. Studies on dynamics of lipid deposition in the arterial tissue during experimental atherosclerosis. Calcutta, Biochemistry, 1965-68. Ghosh, J. J., Professor.

616.1360756

1113.172 Ghosh, Sobhendra Nath. Lipid pattern of brain and frytritary with reference to atherosclerosis. Calcutta, Medicine, 1966-67. Mukherjee, Saraj Ranjan.

616.13607

1114.173 Hajra, Amiya Chandra. Studies on the relationship of plasma nonedineuphrine and its urinary excretion with the different lipid fractions in ischemic heart disease and hypertension. Calcutta, Medicine, 1965-68. Ghose, B. P., Head of the Department of Biochemistry, S. S. K. M. Hospital, Calcutta.

616.13207

1115.174 Mukherjee, Kalyanmay. Congestive cardiac failure in malignant hypertension and significance of cledrolitic concentration studies in the cases. Calcutta, Medicine, 1958-66. Gupta, J. C., Head of the Department of Cardiology, S. S. K. M. Hospital, Calcutta.

616.13207

1116.175 Ray, Haradhan. Studies on the role of dietary protein in arteriosclerosis. Calcutta, Medicine, 1963-67. Bagchi, K., Professor, All India Institute of Hygiene & Public Health, Calcutta.

616.136

Blood

1117.176 Mitra, Santosh Kumar. Studies on leukaemia. Calcutta, Medicine, 1962-66. Sen, Amiyakumar, Head of the Department of Surgery.

616.15507

1118.177 Raychaudhuri, Ajitkumar. Studies on leukaemias. Calcutta, Medicine, 1965-67. Chatterjee, J. B., Director, School of Tropical Medicine, Calcutta.

616.155

1119.178 Saba, Nilmani. Haematologic studies of Indian subjects with special reference to enzymic variations in various haemoglobin disorders. Calcutta, Medicine, 1966-68. Independently.

616.15

1120.179 Shah, J. A. Studies on aetiology of tropical eosinophilia. Delhi, Patel Chest Institute, Delhi, 1963-67. Gupta, N. P., Asstt. Director, Patel Chest Institute, Delhi and Shrivastava, J. B., Director, National Institute of Communicable Diseases, Delhi.

616.156

Diseases of the Respiratory System

1121.180 Acharyya, Pankajbehari. Vascular pattern of lungs in pulmonary tuberculosis. Calcutta, Medicine, 1961-67. Korai, Godraj S., Professor of Surgery, National Medical College, Calcutta.

616.246

1122.181 Adak, Banbihari. Studies in chronic bronchitis, asthma and emphysema. Calcutta, Medicine, 1958-66. n.g.

616.2

1123.182 Chatterji, Susilkumar. A study of the hymphaties of lungs. Calcutta, Medicine, 1963-67. Ray, Probodh Ranjan, Professor of Anatomy, R. G. Kar Medical College, Calcutta.

616.24807

1124.183 Nandy, Gopalchandra. Assessment of domiciliary chemotherapy in pulmonary tuberculosis with special reference to irregularities (interruptions of drugs regenium) in the therapy. Calcutta, Medicine, 1962-67. Sen, Prafulla Kumar, Head of the Department of the Diseases of Chest.

616.246061

1125.184 Subramanian, S. Clinico-pathological and experimental studies of chronic cor-pulmonale. Delhi, Patel Chest Institute, Delhi, 1965-67. Viswanathan, R., Scientist Emeritus, Patel Chest Institute, Delhi.

Chronic cor-pulmonale describes the secondary effects of lung diseases upon the right ventricle. It can result from gradual and long standing obstructive secondary to disease of lung paranchyma and bronchopulmonary disorders; kyphoscoliosis or primary disease of the pulmonary arteries or arterioles. The pathogenesis of chronic cor-pulmonale, especially the role of hypoxia, will be studied by conducting experiments on animals and patients with established chronic cor-pulmonale. Haemodynamics by cardiac catheterization will be particularly stressed.

616.2407

Diseases of Digestive Tract

Stomach

1126.185 Das, Chittaranjan. Role of gastrointestinal bacterial infections in malnutrition. Calcutta, Medicine, 1966-67. Sen, R., Professor, Dairy Research Institute, Karnal.

616.33907

Intestines

1127.186 Datta, Biswanath. A comparative study of serum and urinary pepsinogen in normal individuals and peptic ulcer cases. Calcutta, Medicine, 1964-67. Chaudhuri, S. N., Professor, Patel Chest Institute, Delhi.

616.34307

1128.187 Mandal, Aswinikumar. Nutritional studies on diarrhoea in infants and children. Calcutta, Medicine, 1964-67. Bagchi, K., Professor, All India Institute of Hygiene & Public Health, Calcutta.

616.34207

1129.188 Ray, Sree. Kidney function in acute gastrointestinal bleeding. Calcutta, Medicine, 1964-67. Chhetri, Manikumar, Professor of Medicine, S. S. K. M. Hospital, Calcutta.

616.34

Liver

1130.189 Bhattacharyya, Arabindo. Metabolic changes in acute and chronic liver damage. Calcutta, Medicine, 1965-67. Mukherjee, Achintya Kumar, Head of the Department of Physiology, Presidency College, Calcutta.

616.362

Nutritional & Metabolic Diseases

1131.190 Bhan, Ashok Kumar. Biochemical studies in protein malnutrition. Delhi, Biochemistry, 1963-67. Subramanian, T. A. V., Professor and Head of the Department of Biochemistry, Patel Chest Institute, Delhi.

616.399

1132.191 Chakrabarty, Ardhendusekhar. Studies in metabolism of iron in normal and diseased conditions with special reference to scurvy. Calcutta, Medicine, 1964-68. Banerjee, Sachchidananda, Director, Research Division, Deys Medical Laboratories, Calcutta.

616.394075

Diseases of Blood-forming, Lymphatic & Endocrine Systems

1133.192 Bhise, K. B. Fatty acids in health and diabetes. Bombay, Institute of Science, 1963-67. Magar, N. G., Professor.

The study is restricted to normal individuals as well as diabetic patients of group 40 to 60 years. Total fatty acids and polyunsaturated fatty acids have been studied from blood serum. Diabetic patients have been kept on insulin and tolbutamide drug for 3 to 6 months and the above estimations carried out. 4 enzymes, namely, hexokinase, phosphorylase, citrate cleavage and malic from the alloxan-diabetic rat liver have also been studied.

616.462075

1134.193 Rajapushkar, Monoharvi. Adrenergic blockade and its reversal. Calcutta, Medicine, 1959-67. Mukherjee, D.

616.45

Dermatology

1135.194 Chatterjee, Animesh. Role of glycogen in tissue and liver in different dermatoses. Calcutta, Medicine, 1965-67. Banerjee, B. N., Head of the Department of Dermatology, Medical College, Calcutta.

616.5

1136.195 Gupta, Devendra Kumar. The role of sugar in various dermatoses. Calcutta, Medicine, 1965-67. Banerjee, B. N., Head of the Department of Dermatology, Medical College. Calcutta.

616.5075

Vesicular & Pustular Eruptions

1137.196 Bandyopadhyay, Apurbakumar. Trace elements relationship in boils. Calcutta, Biochemistry, 1962-67. Adhikari, Mahadeb. Lecturer in Applied Chemistry.

616.52075

1138.197 Jagadish Chander. A study on historical changes in the tissues in different types of eczema. Calcutta, Medicine, 1965-67. Banerjee. B. N.. Head of the Department of Dermatology, Medical College, Calcutta

616.521

1139.198 Sarkar, Kanailal. Clinical and pathophysiological observations on Pemphigus vulgaris. Calcutta, Medicine, 1965-67. Banerjee, B. N., Head of the Department of Dermatology. Medical College. Calcutta

616.52

Pigmentary Changes

1140.199 Das, Kamaleschandra. Study on etiological aspects of different cutaneous hyperpigmentations. Calcutta, Medicine, 1965-67. Banerjee, B. N., Head of the Department of Dermatology. Medical College, Calcutta.

616.55075

1141.200 Sur, Dipti Sankar. Histological study of the skin in vitiligo. Calcutta, Medicine, 1965-68. Sengupta, P. C., Professor. School of Tropical Medicine, Calcutta.

616.55

Diseases of Urogenital System

1142.201 Aurora, Amrit Lal. Pathogenesis of urolithiasis with special reference to bladder stone disease of childhood. Delhi, Maulana Azad Medical College, Delhi, 1963-66. Gupta, D. N., Head of the Department of Pathology, Maulana Azad Medical College, Delhi.

The etiopathogenesis of the bladder stone disease of childhood prevalent in the neighbourhood of Delhi has been studied. The role of vitamin A and B6 deficiency, calcium and oxalate metabolism, serum and urinary proteins has been investigated in clinical material and rabbits. The relationship of kidney stones to bladder stone disease has also been investigated.

616.62207

1143.202 De, Aditikumar. The mechanism of action of steroids in nephrotic syndrome. Calcutta, Medicine, 1965-67. Mukherjee, Kanailal, Professor of Anatomy (Retd.), R. G. Kar Medical College, Calcutta.

616.612061

Communicable Diseases

1144.203 Mitra, Amarchandra. Smallpox study of antibody status, virulence of isolated virus, strains and clinical severity of cases. Calcutta, Medicine, 1961-68. Sarkar, J. K., Professor of Virology, School of Tropical Medicine, Calcutta.

616.912

1145.204 Modak, Krishnakanta. A study on the role of some of the host factors in instephylocent infections. Calcutta, Medicine, 1965-67. Basumallik, K. C., Professor of Pathology, S. S. K. M. Hospital, Calcutta.

616.9

1146.205 Mukherji, Asimkumar. Experimental study of tissue reaction to candida albicans infection. Calcutta, Medicine, 1965-67. Basumallik, K. C., Professor of Pathology, S. S. K. M. Hospital, Calcutta.

616.9

Bacterial, Viral & Rickettsial Diseases

1147.206 De, Madhusudan. Studies on the agglutination reaction with somatic-'O' suspension of salmonellatyphi. Calcutta, Medicine, 1966-68. Sen, Rabindra Nath, Professor, Dairy Research Institute, Karnal.

616.9272

1148.207 Pal, Himangsu Kumar. A study of the pathology and pathogenesis of chorio-ammeonitas in man and in experimental animals. Calcutta, Medicine, 1964-67. Bhattacharyya, K., Professor of Pathology, Nilratan Sircar Medical College, Calcutta.

616.92507

Enteric Infections

1149.208 Bhargava, Usha. Physiological actions and biochemical characteristics of various bractions of vibrio choleral culture. Calcutta, Physiology, 1964-68. Schafer, D.E., Visiting Scientist in Physiology, Rockefeller Foundation.
616.9320755

1150.209 Chatterji, Prodyotkumar. Bacteriological immunological study of choleragenic vibrios with special reference to cholera prophylaxis. Calcutta, Medicine, 1964-68. Mukherjee, S., Director, Indian Institute of Experimental Medicine, Calcutta.
616.932

1151.210 Datt Chaudhuri, Amalendu. Experimental amoebiasis. Calcutta, Medicine, 1963-67. Chaudhury, R. N., Director (Retd.), School of Tropical Medicine, Calcutta.
616.9353

1152.211 Deb. Bhupesh Chandra. Serological studies in vibrio cholera with particular reference to immunity in cholera infection. Calcutta, Medicine, 1965-68. Srivastava, D. L.
616.93207

1153.212 Raychaudhuri, Jayasri. Studies on the growth inhibitory effect of crythrose on vibrio cholera. Calcutta, Physiology, 1964-67. Datta, Asoke, Lecturer.
616.932

1154.213 Sinha, Renuka. Immunological study of vibrio choleric. Calcutta, Medicine, 1966-68. Srivastava, D. L.
616.932014

Medical Parasitology

1155.214 Bagai, Ramesh Chandra. Biochemical studies in filariasis with special reference to immunological aspects. Aligarh, Chemistry, 1966-69. Siddiqi, A. M. and Subrahmanyam, D., Deputy Director, National Institute of Communicable Diseases, Delhi.
616.96520756

1156.215 Boral, Ajit Kumar. Studies on the development of microfilaria bancrofty of culex sp. Calcutta, Medicine, 1964-68. Ghosh, S. M., Professor, National Medical College, Calcutta.
616.9652

Diseases due to Physical & Climatic Conditions

1157.216 Halder, Pabitra Kumar. Studies on flying stress in air crews in India. Calcutta, Medicine, 1965-67. Saha, H., Professor of Surgery, Nilratan Sircar Medical College, Calcutta.
616.980213

1158.217 Bandyopadhyay, Asutosh. Experimental cancer chemotherapy studies of the new anti cancer drugs on transplanted leukomic tumor. Calcutta, Applied Chemistry, 1966-68. *Mukherjee, B., Director, Cancer Research Institute,* Calcutta.

616.994061

1159.218 Bhose, Loknath. A study of falic acid and its antagonists in human malig morray with special reference to tumors of the female genital tract. Calcutta, Medicine, 1965-67. Chaudhuri, J.

616.99465

1160.219 Biswas, Sipra. A study on nucleus of cancer cell with relation to the cytochemical and biochemical aspects. Calcutta, Biochemistry, 1965-67. Raychaudhuri, Jayasri, Research Guide, Cancer Research Institute, Calcutta.

616.994

1161.220 Chandramouli, Krishnamurthy. Biochemical studies on radiation and radiomimetic agents and their therapeutic applications. Madras, Cancer Institute, Madras, 1965-68. Krishnamurthi, Sundaram, Director, Cancer Institute, Madras and Sivaramakrishnan, Valadi Mahadeva, Head of the Isotope Division, Cancer Institute, Madras.

The action of isotopically labelled radiomimetic chemicals in biological systems is being investigated for a better understanding of the site of action of radiation in the cell. The modification of radiation response by various chemicals is being studied. This will result in more effective radio-and chemotherapy in cancer.

616.99407575

1162.221 David, Gnana Felicia. Distribution, metabolism and functions of lipids and lipoproteins in normal and neoplastic tissues. Madras, Cancer Institute, Madras, 1965-69. *Krishnamurthi, Sundaram, Director, Cancer Institute,* Madras and Sivaramakrishnan, Valadi Mahadeva, Head of the Isotope Division, Cancer Institute, Madras.

The gross and subcellular distribution of various lipid constituents, especially phospholipids, in normal and malignant tissues, is being studied to note variations accompanying carcinogenesis. The metabolism of phospholipids in tumors and their functions in relation to growth and its regulation are being investigated.

616.99407582

1163.222 Jagadeesan, Vaidhyanathan. Studies on the biological distribution of radioisotopes and chelating agents with special reference to Oncology. Madras. Cancer Institute, Madras.1965-69. Krishnamurthi, Sundaram, Director, Cancer Institute. Madras and Sivaramakrishnan, Valadi Mahadeva, Head of the Isotope Division, Cancer Institue, Madras.

The ability of various chelating agents to modify the tissue distribution of administered radioisotopes is being studied to achieve localization of the isotope in the desired organ i. e. tumor tissue and to eliminate the isotope, once the dose is delivered. An attempt is also being made to find the ideal chelating agent.

616.99407575

1164.223 Mandal, Sukdeb. Biological study in the process of experimental carcinogenesis. Calcutta, Medicine, 1962-66. De, Pradyot Kumar, Head of the Department of Cytology, Cancer Research Institute, Calcutta.

616.99407

1165.224 Ray, Archana. Biochemical studies of human malignant tissues in relation to some anti cancer drugs. Calcutta, Medicine, 1965-67. Ray, Sailes Ch., Professor and Head of the Department of Biochemistry.

616.994

1166.225 Ray, Dilipkumar. Chemotherapy : Its role in the prevention and treatment of carcianoma of female genital tracts. Calcutta, Medicine, 1965-68. Mukherjee, B., Director, Cancer Research Institute, Calcutta.

616.99461061

1167.226 Shanta, V. *Oral cancer in South India.* Madras, Cancer Institute, Madras, 1965-68. Krishnamurthi, Sundaram, Director, Cancer Institute, Madras.

The research deals with the anatomical structure of the oral cavity, and its relation to the mechanism of oral malignancies, epidemiological studies of oral cancers in South India. the biology of tobacco cancers of the oral cavity, studies in special techniques of treatment at the Cancer Institute, and the management of incurable oral cancer.

616.994

1168.227 Shee, Manjulika. A study on nucleic acid in cancer cell biology. Calcutta, Medicine, 1966-69. Chaudhuri, J.
616.99407

Tuberculosis

1169.228 Pradhan, Manish Chandra. Studies on steroid therapy on certain aspects of protein metabolism in patients suffering from tuberculosis pleural effusion. Calcutta, Medicine, 1966-68. Banerjee, Sachchidananda, Director, Research Division, Deys Medical Laboratories, Calcutta.

616.99524061

1170.229 Ramachandran, Radha. Biochemical studies on Indian tubercle bacilli in relation to their virulence. Madras, Tuberculosis Chemotherapy Centre, Madras, 1965-68. Gangadharam, P. R. J., Senior Research Officer, Tuberculosis Chemotherapy Centre, Madras.

Investigations are being carried out to study the biochemical differences between high virulent and low virulent pretreatment strains of typical mammalian drug sensitive Indian tubercle bacilli. These investigations include basic biochemical studies, particularly on catalase, substrate utilisation for growth and oxygen consumption, macromolecular synthesis, and susceptibility to harsh environments, like peroxide and radiation.

616.995061

1171.230 Sukul, Lakmikanta. Observation of B. C. G. vaccinated persons in relation to development of allergy, compilation and development of tuberculosis disorders. Calcutta, Medicine, 1962-67. Sen, Prafulla Kumar, Head of the Department of Diseases of Chest.

616.995

Leprosy

1172.231 Chaudhuri, Sachin Kumar. Study on reaction in tuberculoid leprosy. Calcutta, Medicine, 1964-67. Banerjee, N. M., Professor of Radiology, Medical College, Calcutta.

616.998

1173.232 Mitra, Satyacharan. Enzymologic study in leprosy transminases. Calcutta, Medicine, 1962-67. Banerjee, B. N., Head of the Department of Dermatology, Medical College, Calcutta.

616.998

1174.233 Palekar, A. G. Metabolic changes during leprosy. Bombay, Institute of Science, 1962-67. Magar, N. G., Professor.

The nitrogen balance of leprosy patients, their dietary intake and urinary excretion of total nitrogen, creatine, creatinine, urea, uric acid, amino acids etc., have been studied. Serum amino acids, vitamin A, caretinoids, α tocopheral of normal individuals as well as leprosy patients have been investigated. A study of lysosomal enzymes acid phosphatase, lathapsin, ribonuclease, arylsulphatase from leprosy tissues is in progress.

616.998075

Surgery

1175.234 Gaind, S. Effect of anaesthesia on metabolism in abdominal surgery. Delhi, Surgery, 1965-68. Chaudhuri, M., Professor of Surgery, Lady Hardinge Medical College & Hospital, Delhi and Subramanian, T. A. V., Professor of Biochemistry, Patel Chest Institute, Delhi.

The following tests will be carried out preoperatively and postoperatively : (1) Thymol turbidity, (2) Zinc sulphate activity, (3) Total bilirubin, (4) Total cholesterol, and (5) Shilling labelled B_{12}.

617.5507

1176.235 Gupta, Saroj. Fluid and electrolyte observation in the surgical cases with special reference to the effect of different weathers. Banaras, Surgery, 1966-68. Udupa, K. N., Professor and Head of the Department.

617.55

1177.236 Kundu, Jaydebprasad. Study of PH and P. Co. under anaesthesia. Calcutta, Medicine, 1965-67. Chatterjee, S. K., Senior Visiting Surgeon, Medical College, Calcutta.

617.96

1178.237 Mitra, Debjyoti. The role of blood of lipider in major burns. Calcutta, Medicine, 1965-67. Sen, Amiyakumar, Head of the Department of Surgery.

617.11073

Gynecology

1179.238 Bhattacharjee, Dilip. Histochemical studies in endocrine glands. Bombay, Atomic Energy Establishment, Trombay, 1965-67. Sahasrabudbe, M. B., Biochemistry & Food Technology Division, Atomic Energy Establishment, Trombay.

The mechanism of follicular atresia in mammalian ovary is being studied using histochemical and autoradiographic methods. Inhibition of DNA synthesis, as judged by triliated thymidine incorporation, appears to be the causative factor in initiating ovarian atresia.

618.11

1180.239 Hardas, Usha D. Immunogenetics of urinary tract infection. Nagpur, Medical College, Nagpur, 1965-68. Junnarkar, R. V., Professor of Pathology & Bacteriology, Medical College, Nagpur.

The research envisages evaluation of different tests for the diagnosis of urinary tract infection in symptomatic and symptomatri cases, genetic study of bacteria commonly found in such cases, and experimental production of urinary infection in laboratory animals.

618.142075

1181.240 Mukherjee, Manidipa. Initiation of ovulation in cases of amenorrhea. Calcutta. Medicine, 1966-68. Banerjee, Srimanta Kumar, Professor of Gynaecology, Medical College, Calcutta.

618.172

1182.241 Samaddar, Maya. Physiological and biological changes in the hymen of the female of the child bearing age before and after sterilisation. Calcutta. Medicine, 1966-68. Chakrabarti, B., Professor of Physiology, Medical College, Calcutta.

618.178

Obstetrics

1183.242 Bhattacharyya, Sarojkanti. Haemodynamics in pregnancy. Calcutta, Medicine, 1965-67. Saha, H., Professor of Surgery, Nilratan Sircar Medical College, Calcutta.

618.77

1184.243 Biswas, Tarunkumar. Studies on blood gas analysis of mother and new babies under various types of anaesthesia and analgesia. Calcutta, Medicine, 1965-67. Pramanik, S., Professor of Anaesthesiology, Medical College, Calcutta.

618.2

1185.244 Chaudhuri, Sunil Kumar. Biochemical and nutritional studies on toxaemia of pregnancy. Calcutta, Medicine, 1965-67. Bagchi, K., Professor, All India Institute of Hygiene & Public Health, Calcutta.

618.77

1186.245 Datta, Ranjitkumar. Nature of neurophysiological changes during normal and toralmir of pregnancy. Calcutta, Medicine, 1963-67. Maiti, A. K., Head of the Department of Physiology.

618.2

1187.246 Ghosh, Ajay Kumar. Bacilluria in pregnancy and its significance. Calcutta, Medicine, 1965-68. Guha, A. C., Professor of Pathology, National Medical College, Calcutta.

618.3014

1188.247 Ghosh, Ashoka. Observation on the correlation between the placental pathology, immunological responses and biochemical changes in abnormal pregnancy of human and experimental animals. Calcutta, Medicine, 1964-67. Bhattacharyya, K., Professor of Pathology, Nilratan Sircar Medical College, Calcutta.

618.2

1189.248 Kongar, Nirmalendu. Studies on regional cytology in habitual abortion and its changes with the use of progesterone. Calcutta, Medicine, 1966-69. Guha, A. C., Professor of Pathology, National Medical College, Calcutta.

618.33

Pediatrics

1190.249 Ramchandran, K. The effect of cheap infant foods prepared from locally available sources on the clinical, biochemical, nutritional and psychological status of infants of the age group of one to five. Baroda, Biochemistry, 1965-68. Ramakrishnan, C. V., Professor and Head of the Department.

A method has been worked out to incorporate lime in infant food and studies carried out on infants and rats show that the cheap food worked out improves physiological growth.

618.92

1191.250 Sarbadhikari, Basabi. Gastric function in the new born with reference to molitsy of the stomach and secretion of hydrochloric acid and pepsin. Calcutta, Medicine, 1965-67. Mukherjee, Saraj Ranjan.

618.92

Comparative & Experimental Medicine

1192 251 Bhatnagar, B. N. S. A study of shock in intestinal obstruction. Banaras, Surgery, 1966-68. Udupa, K. N., Professor and Head of the Department.

The work is based on the study of factors at work in the production of irreversible shock in strangulating intestinal obstruction in dogs. The aspects under consideration are the biochemical, bacteriological and changes in venous pressure in the portal and systemic circulations along with a study of measures to prevent and counteract such changes.

619.7

1193.252 Das, Parimal. Studies on certain biological and histological aspects in experimental animals with some oral contraceptions. Calcutta, Medicine, 1965-67. Banerjee, Srimanta Kumar, Professor of Gynaecology, Medical College, Calcutta.

619

1194.253 Kwatra, Mohan Singh. Studies on avian tuberculosis with particular reference to duck tuberculosis. Agra, Bacteriology & Virology, 1963-67. Sharma, Girdhari Lal, Head of the Division of Bacteriology & Virology, Indian Veterinary Research Institute, Mukteswar.

Studies have been carried out to find the efficacy of tuberculin and rapid plate agglutination tests in detecting tuberculosis in ducks. Haematological changes, following experimental infection, have been observed at various stages and gross, microscopic and histochemical changes studied in detail. Comparative study has also been made of infected fowls.

619.5

1195.254 Pal, Anilkumar. The mechanism of utilisation of sugar in animals exposed to different ambient temperature. Calcutta, Medicine, 1966-68. Sadhu, D. P., Professor, Bengal Veterinary College, Calcutta.

619

1196.255 Sardeshpande, P. D. Studies on tumors of domestic animals. Bombay, Institute of Science, 1964-68. Inamdar, N. B., Professor of Zoology.

The research comprises the cytology and cytochemistry of tumors in dogs.

619.7

Rodents

1197.256 Abhyankar, Leela Shreeniwas. Biological studies on carcinogenesis at cell level. Bombay, Indian Cancer Research Centre, Bombay, 1965-68. Ranadive, K. J., Chief of the Biology Division, Indian Cancer Research Centre, Bombay.

Studies on chemical carcinogenesis using diploid cell strain ESkm, developed from embryonic Swiss mouse skeletal muscles, are in progress. Several clones and subclones have been isolated from a chemically induced mouse fibrosarcoma MFS_8. These clones, subclones and clonal tumor cells have been studied for morphology, cytology, growth and malignancy.

619.93

1198.257 Aboobaker, V. S. Biochemical studies in cancer. Bombay, Atomic Energy Establishment, Trombay, 1963-67. Sahasrabudhe, M. B., Biochemistry & Food Technology Division, Atomic Energy Establishment, Trombay.

Investigations have been carried out on properties and optimum conditions for FAD-synthesising enzyme in mouse liver. The activity of this enzyme is depressed in tumor bearing animals. Mouse liver and kidney are shown to contain a FAD-degrading enzyme. This activity is elevated in tumor bearing mice.

619.93

1199.258 Ahuja, Krishan Kumar. Experimental allergic encephalomyelitis. Bombay, Topiwala National Medical College, Bombay, 1963-68. Independently.

It is proposed to produce these lesions in the rabbits by using homologous and heterologous nerve tissues and to study the pathology and pathogenesis of the lesions produced.

619.93

1200.259 Bandyopadyay, Asutosh. Experimental cancer chemotherapy studies of the new anti cancer drugs on transplanted tumor in mice. Calcutta, Physiology, 1965-67. Mukherjee, B., Director, Cancer Research Institute, Calcutta.

619.93

1201.260 Dave, Mrudula Jatashankar. Chromosomal study in congenital malformation with special reference to sexual anomalies and intersexuality. Bombay, Indian Cancer Research Centre, Bombay, 1961-68. Khanolkar, V. R., National Professor of Medicine.

A chromosomal study in human congenital sex anomalies and male infertility or primary ovarian failure is in progress. Experimental production of comparable changes in rabbit is necessary to study the role of environmental factors vis-a-vis these anomalies. The normal gonadal histology in rabbit has been completed and the chromosomal count established.

619.93

1202.261 Gothoskar, Sunanda Vijay. Biological testing of growth inducing and growth inhibiting substances. Bombay, Indian Cancer Research Centre, Bombay, 1965-68. Ranadive, K. J., Chief of the Biology Division, Indian Cancer Research Centre, Bombay.

A number of substances used in every day life are suspected to be carcinogenic. Some of them are being tested biologically on mice and rats for their carcinogenic activity using various techniques. Studies on growth inhibiting property of two substances on ascites tumors of rats and mice are also in progress.

619.93

1203.262 Karande, K. A. Experimental study on breast cancer with special reference to hormonal factor. Bombay, Indian Cancer Research Centre, Bombay, 1963-66. Ranadive, K. J., Chief of the Biology Division, Indian Cancer Research Centre, Bombay.

The cytology of the normal as well as castrate pituitaries of different cancer susceptible and cancer resistant strains of mice, such as, C3H(Jax), ICRC and C57(Black) has been studied. Bioassay of the gonadotrophic hormone of the castrate pituitaries of the above mentioned strains of mice is being carried out.

619.93

1204.263 Raychaudhuri, Bithika. Studies on certain aspects of rodent tumors. Calcutta, Medicine, 1965-68. Ray, Durlav Krishna, Professor, Indian Institute of Experimental Medicine, Calcutta.

619.93

1205.264 Saha, Bratinkumar. Studies on certain aspects of rodent tumors. Calcutta, Medicine, 1965-68. Ray, Durlav Krishna, Professor, Indian Institute of Experimental Medicine, Calcutta.

619.93

1206.265 Sheth, N. A. Biological and biochemical studies on host-tumor interactions. Bombay, Indian Cancer Research Centre, Bombay, 1961-66. Ranadive, K. J., Chief of the Biology Division, Indian Cancer Research Centre, Bombay.

Studies have been carried out on host-tumor relationships in spontaneous mammary carcinogenesis in two susceptible strains of mice C3H (Jax) and ICRC at different age groups, and in two types of transplanted tumors. Metabolic studies of breast tissues during spontaneous carcinogenesis and biochemical studies on various fibrosarcomas and carcinomas are in progress.

619.93

1207.266 Sinha, Bidhubhushan. Studies on certain aspects of rodent tumors. Calcutta, Medicine, 1965-67. Ray, Durlav Krishna, Professor, Indian Institute of Experimental Medicine, Calcutta.

619.93

1208.267 Talageri, V. R. Metabolic studies on cell strains cultivated in vitro. Bombay, Indian Cancer Research Centre, Bombay, 1962-66. Ranadive, K. J., Chief of the Biology Division, Indian Cancer Research Centre, Bombay.

A comparative study of 8 tissue culture cell lines derived from normal and malignant tissues has been undertaken for the cellular levels of protein, nucleic acids and rates of glucose utilization. Respiration, glycolysis and aldolase activity measurements have been made on clones derived from mouse fibrosarcoma tumor. The tumor producing clone has shown relatively higher DNA content, high anaerobic glycolysis and aldolase activity.

619.93

1209 268 Thrivikraman, K. V. Studies on brain metabolism. Baroda, Biochemistry, 1965-67. Ramakrishnan, C. V., Professor and Head of the Department.

Studies have been undertaken to determine the effect of protein malnutrition in different areas of rat brain in terms of biochemical functioning.

619.93

Primates

1210.269 Tandon, B. K. A study of juxta-epiphyseal vessels of long bones. Delhi, Anatomy, 1966-68. Bajaj, I. D., Head of the Department of Anatomy, Maulana Azad Medical College, Delhi.

It is proposed to study the arrangement of vessels in the epiphyseal region of the long bones of experimental animals, both by light microscopy and electron microscopy, after giving injections of dye.

619.98

Ayurvedic System

Basic Principles

1211.270 Dube, Govind Prasad. Studies on biochemical body composition in different human groups as described in Ayurveda. Banaras, Basic Principles, 1966-69. Udupa, K. N., Professor of Surgery.

The research comprises a quantitative analysis of body composition in cases of different human groups as described in Ayurvedic literature. The study has been carried out by radiographic and isotopic dilution techniques and is expected to throw light on the body mechanism during health and disease.

1212.271 Shukla, Harish Chandra. Studies on human psychosomatic constitution by physical and anthropometric methods as described in Ayurveda. Banaras, Basic Principles, 1966-69. Udupa, K. N., Professor of Surgery.

Ayurveda has its special system of classification for the entire physiopathology and the therapies adopted by it. It also gives a classification of human beings on the basis of the variation in their psychosomatic behaviour. It is proposed to develop a scientific technique to assess the human variations by physical and anthropometric methods.

Dravya Guna

1213.272 *Chaturvedi, Chandan. Studies on Rasa and Vipaka with their application to Kaumar Bhritya. Banaras, Dravya Guna, 1966-69. Sharma, P. V., Professor and Head of the Department.*

The experimental study on Rasa has been planned and some indigenous drugs, commonly used in the practice of Kaumar Bhritya i. e. diseases of children, have been selected for the present study.

1214.273 Chunekar, Krishna Chandra. Pharmacognostical studies of some Indian medicinal plants. Banaras, Dravya Guna, 1966-69. Sharma, P. V., Professor and Head of the Department.

A pharmacognostical study of parts of the following drugs used in medicine has been undertaken. (1) Pterocarpus marsupium Roxb — Wood, (2) Terminalia tomentosa W & A—Wood, (3) Solanum nigrum Linn. — Leaf, (4) Aegle marmelos Corr. — Leaf, and (5) Clerodendrum phlomidis Linn. f. — Bark.

1215.274 Gupta, Ram Kripalu. A study of Shonitasthapan Dravyas. Banaras, Dravya Guna, 1966-69. Sharma, P. V., Professor and Head of the Department.

In the group of Shonitasthapan Dravyas, three sub-groups have been made, namely, Raktaprasadan, Raktastambhan and Raktavardhan. On surveying the Ayurvedic literature, a list of the drugs pertaining to each sub group has been prepared. Out of this, some important and common drugs have been selected for study. Further experimental study has been planned with certain parameters.

1216.275 Joshi, Damodar. Pharmacotherapeutic studies on Abhraka Bhasma. Banaras, Dravya Guna, 1966-69. Sharma, P. V., Professor and Head of the Department.

The literary survey regarding description, properties and uses of Abhraka (Mica) in ancient Ayurvedic literature is being carried out. One series of Abhraka Bhasma has been prepared and the samples for various tests after each process are being collected. Hematological, toxicological, and clinical study of the preparation in animals is in progress.

1217.276 Ojha, Jharkhandey. Study of controversial drugs in Ayurveda. Banaras, Dravya Guna, 1966-69. Sharma, P. V., Professor and Head of the Department.

The study has been divided into literary and experimental portions. In literary, the references concerned are being collected. Samples with necessary information regarding Pashan-Bheda have been collected from various centres. Aervalanata and Bergenia-ligulata have been received so far. The experimental method for stone production has been established. In vitro study of the drug Aerva-lanata is in progress.

1218.277 Sharma, Tryambak Nath. Studies on standardisation of Asawarista. Banaras, Dravya Guna, 1966-69. Sharma, P. V., Professor and Head of the Department.

The literary survey of ancient literature regarding Asawarista has been completed and references have been compiled from Vedic Shamhitas, Smritis, Puranas etc. Some Asawaristas, namely, Kumari-Asawa, Lohasawa and Amalki-Phalasawa, have been prepared for chemical analysis. The estimation of alcohol and other components as well as microchemical test of the vegetative cell wall of Asawas have been undertaken.

Kaya Chikitsa

1219.278 Chaturvedi, Gorakh Nath. Certain clinical and experimental studies on Ischaemic heart disease and its management with Ayurvedic drugs. Banaras, Kaya Chikitsa, 1966-69. Udupa, K. N., Professor of Surgery.

The role of long term use of oral anticoagulants in the prevention of Ischaemic heart disease has been recently recognised. Some indigenous drugs have been screened and the results are encouraging. Further studies are in progress. An attempt is also being made to find the aetiological treatment of Ischaemic heart disease with indigenous drugs.

1220.279 Dube, Chandra Bali. Aetiology, pathology and management of Bronchial Asthama as described in Ayurveda. Banaras, Kaya Chikitsa, 1966-68. Upadhyaya, Y. N., Professor and Head of the Department.

A comprehensive survey of aetiological factors in various strata of population with reference to environment, heredity etc., is being made to study the aetiopathology of the Bronchial Asthma (Shvas Roga) in Ayurveda. The management of the patient will be done on Ayurvedic lines with special reference to its relation with digestion and metabolism.

1221.280 Jha, Bilat. A critical study of the diseases of children. Darbhanga, Medicine, 1966-70. Mishra, Shrikrishna, Principal, Shiv Ganga Ayurved Sanskrit College, Madhubani, Darbhanga.

1222.281 Ojha, Divakar. Studies on aetiology, pathogenesis and management of Vitiligo (Svitra). Banaras, Kaya Chikitsa, 1966-69. Upadhyaya, Y. N., Professor and Head of the Department.

Study on Vitiligo although dates from 1651, its obscureness regarding aetiology, pathogenesis and management still greatly exists. In view of this fact and finding elaborate references with claims on the problem in Ayurvedic classics with no planned research except few indigenous drug trials, this scientifically controlled study has been planned.

1223.282 Pandey, Pradyumn. Studies on the role of Semicarpus-Anacardium (Bhallataka) in the treatment of Vata-Vyadhi. Banaras, Kaya Chikitsa, 1966-69. Upadhyaya, Y. N , Professor and Head of the Department.

A clinical trial has been planned to evaluate the efficacy of the Semicarpus-Anacardium in the patients suffering from Vata-Vyadhi. Some experimental studies have also been planned to find out the mode of action of the drug.

1224.283 Pandey, Viveka Nand. The effect of indigenous drugs in the management of certain liver disorders. Banaras, Kaya Chikitsa, 1966-68. Udupa, K. N., Professor of Surgery.

The spectrum of liver disease is looked upon either as morphologic or functional alterations. The correlation between these two types has many queries to answer. These events are being studied by producing several types of experimental liver damage. Simultaneously some indigenous drugs are also being screened which may prove helpful in aversion of such experimental conditions.

1225.284 Prem Kishore. Role of Grahani Dosha in the production of Amavata (Rheumatoid arthritis) and its management. Banaras, Kaya Chikitsa, 1966-69. Upadhyaya, Y. N., Professor and Head of the Department.

It is proposed to find out definite etiopathogenesis of rheumatoid arthritis on the basis of Ayurvedic concept of Grahani Dosha producing Amavata vis-a-vis rheumatoid arthritis. For this, both clinical and experimental studies on digestion and intestinal absorption with its treatment and its relation with rheumatoid arthritis will be done.

1226.285 Ram Harsh Singh. Studies on regeneration of the kidneys under various conditions and the effect of indigenous drugs. Banaras, Kaya Chikitsa, 1966-69. Udupa, K. N., Professor of Surgery.

The compensatory response of kidneys to injury and some other conditions is suggestive of its potential capacities of regeneration which may possibly be stimulated with some drugs. This phenomenon of regeneration in kidneys is being studied in conditions of injury, inflammation, ischaemia and infections, both in clinical cases as well as in experimental animals. The effect of some indigenous drugs is also being studied.

1227.286 Ravindra Nath Singh. Studies on aetiology and treatment of peptic ulcer (Parinam shoola) with indigenous durgs. Banaras, Kaya Chikitsa, 1966-68. Upadhyaya, Y. N., Professor and Head of the Department.

The aetiology of peptic ulcer is still not definite. Some good references are present in Ayurveda on this subject. The clinical manifestations of peptic ulcer, as described in Ayurveda, are being correlated with the humoral changes. It will throw sufficient light on the aetiology. Separate regimen of treatment is also being formulated and tried for treating the different groups of peptic ulcer patients.

1228.287 Tripathi, Surendra Narain. Anion exchange resins of indigenous origin in the management of lipid disorders. Banaras, Kaya Chikitsa, 1966-69. Udupa, K. N., Professor of Surgery.

The study aims at exploring the possibility of using the anion exchange resins of indigenous source in the disorders of lipid metabolism, specially in obesity and atherosclerosis. The work is being conducted both at experimental and clinical levels. A pilot study has been done and the results are encouraging.

Prasuti Tantra

1229.288 Mishra, Dharm Nath. Anthelmintic activity of certain indigenous drugs. Banaras, Prasuti Tantra, 1966-68. Sharma, P. V., Professor and Head of the Department of Dravya Guna.

1230.289 Tewari, Premavati. The effect of certain indigenous drugs on uterine activity. Banaras, Prasuti Tantra, 1966-69. Sharma, P. V., Professor and Head of the Department of Dravya Guna.

Two indigenous drugs, namely, Gloriosa superba and Costus speciosus have been chosen for present study. Fresh juice of roots of both the drugs has been tested for its uterine activity. Water soluble fraction of alcoholic extract and certain other fractions of Costus speciosus are being tested for their action on uterus.

Shalya Shalakya

1231.290 Deshpande, P. J. Healing in the gastrointestinal canal under the influence of Ayurvedic drugs. Banaras, Shalya Shalakya, 1966-69. Udupa, K. N., Professor of Surgery.

Studies are in progress on healing pattern of wounds of various combinations of gastrointestinal anaestomosis, the parameters being histology, histo-and biochemistry, rupture and tensile strength. The rat gastrointestinal tract has proved suitable for the studies.

1232.291 Lokendra Man Singh. Immunosuppressive activity of indigenous drugs. Banaras, Shalya Shalakya, 1966-69. Udupa, K. N., Professor of Surgery.

The immunosuppressive drugs have helped in the successful transplantation of organs. Indigenous drugs are being screened for their response to peripheral leucocyte count, enhancement or suppression of antibody formation and prolongation of skin bound graft and kidney homograft. Rohitaka, Amoora Rohitaka, has proved to be moderately effective in suppressing the antibody formation and peripheral leucocytes.

1233.292 Pathak, Suresh Narain. Studies on healing of wound with indigenous drugs with particular reference to burns and scalds. Banaras, Shalya Shalakya, 1966-69. Udupa, K. N., Professor of Surgery.

The wound contraction and histology of experimental excised wounds and burns in guineapigs with full thickness, auto, homo and hetero skin transplantation are under study. Under the influence of various drugs and enzymes i. e. Papaya, and topically used Jasmina ghee, the study is being conducted on white rats and guineapigs and assessment made by standard methods.

1234.293 Sankaran, Panamanna Subrahmanya. Regeneration of nervous tissue under the influence of indigenous plants. Banaras, Shalya Shalakya, 1966-69. Udupa, K. N., Professor of Surgery.

The normal pattern of disappearance and reappearance of myelin sheaths after mechanical injury to aural nerve of albino rats has been studied histologically with osmium tetroxide stain. The number and diameter of the rings of myelin sheaths in transverse sections can be measured. Physiological and biochemical studies under the influence of indigenous drugs are being undertaken.

AGRICULTURE

1235.1 Jain, Kamala. The agricultural vocabulary of Bundel Khandi of Jabalpur District. Jabalpur, Hindi, 1962-68. Tiwari, U. N., Professor and Head of the Department.

A compilation of words with meanings that will serve as a dictionary for practical use is envisaged.

630.3

Agricultural Extension

1236.2 Awadhesh Prasad Singh. An analysis of training needs of Agricultural Extension Officers working in I. A. D. P. and I. A. A. Blocks of Bihar. I. A. R. I., Delhi, Agrl. Extension, 1964-67. K. N. Singh, Professor.

630.715

1237.3 Devesh Kishore. A study on impact of radio as a communication medium in diffusion and acceptance of improved agricultural information. I. A. R. I., Delhi, Agrl. Extension, 1964-67. Sharma, S. K., Senior Extension Officer.

630.7153

1238.4 Dube, S. K. Factors affecting adoption of improved agricultural practices. J. N. K. V., Jabalpur, Extension, 1962-67. Dahama, Om Prakash, Professor and Head of the Department.

It is revealed that the adoption of four selected improved farm practices is more in the case of farmers who are older in age, have had higher education and belong to large sized families with large sized holdings and better financial position. This bestows on them a higher social status and facilitates approach to extension workers.

630.715

1239.5 Jha, Pramod Narayan. A study of process of communication, its barriers and measures to increase its fidelity in relation to technological change in agriculture. I. A. R. I., Delhi, Agrl. Extension, 1965-69. Khan, A. R., Head of the Division.

630.715

1240.6 Saxena, A. P. Study of communication channels in the process of adoption of improved farm practices. J. N. K. V., Jabalpur, Extension, 1964-68. Sharma, D. K., Professor.

It is proposed to find out as to how the farm information gets disseminated among farmers and to what extent they are effective in bringing about adoption of improved farm practices.

630.715

1241.7 Sethurao, M. K. Critical analysis of farmers' training programme. I. A. R. I., Delhi, Agrl. Extension, 1965-69. K. N. Singh, Professor.

630.715

1242.8 Sohoni, Arun Wasudeo. Impact of agricultural mechanisation on some aspects of arable farming in Kanjhawala Block. I. A. R. I., Delhi, Agrl. Extension, 1963-67. Khan, A. R., Head of the Division.

Data has been collected with the help of the structured schedule and its statistical analysis is being done to assess the progress of mechanisation in agriculture, the change it has brought about and the barriers it has crossed.

630.715

Farming

Farm Tools, Machinery & Appliances

1243.9 Pyare Mohan Singh. Design of an environmental control chamber for rice crop. I. I. T., Kharagpur, Agrl. Engineering, 1966-68. Pandya, A. C., Professor and Head of the Department and Ghildyal, B. P., Asstt. Professor.

It is proposed to design and construct an environmental control chamber with provision for control and variation of light intensity, temperature and humidity to investigate the optimum environmental conditions for growth of rice plant.

631.34

Soils & Soil Conservation

1244.10 Bhargava, Gyan Prakash. The genesis and development of the soils of the Tungabhadra catchment in the district of Bellary, Mysore and the characteristics contributing to their erodible behaviour. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1966-69. Datta Biswas, N. R., Soil Conservation Officer, All India Soil & Land Use Survey.

It is proposed to study the mode of development of different kinds of soils in the Tungabhadra catchment, and their physical, chemical and physico-chemical properties in relation to their erodible behaviour. Horizon soil samples of the typical profiles representative of eight recognised soil series in the area will be collected together with other relevant data pertaining to developmental conditions etc., for the purposes of research.

631.4

1245.11 Naphde, J. D. Effect of saturation puddling and flooding on the redox potential and pH of paddy soil and rice yield. I. I. T., Kharagpur, Agrl. Engineering, 1964-68. Ghildyal, B. P., Asstt. Professor.

Since puddling and flooding of the soil cut off the oxygen supply, the reduction of soil takes place with the dramatic changes in chemical, physico-chemical and electrochemical properties of the soil. A detailed study of these physico-chemical changes is under way.

631.4

1246.12 Sardar Singh. Role of hydraulic conductivity, permeability and diffusivity coefficient in the infiltration of water into soil. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1964-67. Gupta, Rajinder P.

The transmission coefficients of a soil, such as, saturated and unsaturated hydraulic conductivity and diffusivity, will be evaluated in the laboratory by packing the soil to a known bulk density in special permeameters. The infiltration rates and depth of infiltration will be calculated by using these coefficients. The calculated values will then be checked up experimentally.

631.4

1247.13 Satish Chandra. Studies in genesis of catenary soils found on granitic gneisses in Santhal Parganas as evidenced by their morphology, mineralogy and extent of profile development. Bhagalpur, B. A. College, Sabour, 1964-67. Jha, Parmeshwari Prasad, Professor in Agrl. Chemistry, B. A. College, Sabour.

The succession of soil types in red soil region of Santhal Parganas is characteristic of land forms with variations in relief giving rise to the conception of catena. To understand these soils, a study of the genesis of catenary soils of the area as evidenced by their morphology, mineralogy and extent of profile development has been taken up.

631.4

1248.14 Sinha, Hari Narayan. Physico-chemical properties of some salt affected soils of West Bengal and their reclamation. I. I. T., Kharagpur, Agrl. Engineering, 1965-68. Subramanyam, T. K., Lecturer.

It is proposed to study some of the physical, physico-chemical and chemical characteristics of the salt affected soils of Tamluk Subdivision in Midnapore District of West Bengal. Measures for their improvement for the purpose of rice cultivation will also be investigated.

631.4

1249.15 Wagdi, Mohamed Abd El-Hamid Abd El-Aal. Soil and plant factors involved in determining the quality of irrigation waters with special reference to boron hazard and its control. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1965-68. Ramamoorthy, B., Special Officer, Soil Testing Scheme.

The adsorption and desorption kinetics of soils, clay minerals and plants with respect to boron as affected by pH, residual soluble carbonate, sodium adsorption ratio of irrigation waters, and texture and calcium carbonate content of the soils are under study.

631.4

Soil Chemistry

1250.16 Atre, Arvind Hanumantrao. Phosphate status and its availability in black cotton soils of Vidarbha. Nagpur, College of Agriculture, Nagpur, 1966-69. Ballal, D. K., Professor and Head of the Department of Agrl. Chemistry, College of Agriculture, Nagpur.

About thirty two soil samples, including eighteen profile samples, collected from Wardha and Poorna valleys are being analysed for the estimation of their physical properties and the original phosphate status. Different forms of phosphorus will be estimated. A pot culture experiment for studying the availability of phosphorus has been planned. It will be calculated by doing soil and plant analysis from pot culture.

631.41

1251.17 Ballal, D. K. Studies in decomposition of organic matter in black cotton soil of Vidarbha. Nagpur, College of Agriculture, Nagpur, 1965-68. Independently.

The decomposition of organic material in soil depends upon a number of factors, like type of material, temperature, moisture and soil condition. It is necessary to study these conditions carefully to bring about decomposition of organic matter at proper rate. The decomposition of organic materials, like F.Y.M, compost, green manures, cakes, crop residues etc., in black cotton soil of Vidarbha is being studied to find out the favourable conditions for higher availability of plant nutrients by arranging a number of laboratory and pot culture experiments.

631.41

1252.18 Bandyopadhyay, Panchanan. On the ionic products and chemical potential of iron and aluminium phosphates in acid soils. Calcutta, Chemistry, 1964-67. Chakrabarti, Shibnarayan, Asstt. Professor of Chemistry, Presidency College, Calcutta.

631.416

1253.19 Bandyopadhyay, Santimay. Chemistry of soils and water in relation to inland fisheries. Calcutta, Agriculture, 1958-67. Independently.

631.41

1254.20 Basawan Prasad. Mineralogy of the lateritic soil of Midnapur District, West Bengal. I.I.T., Kharagpur, Agrl. Engineering, 1964-67. Ghildyal, B. P., Asstt. Professor.

Heavy and light minerals from different horizons of the soil profiles have been studied petrographically. The clay fraction of the soils has been subjected to X-ray diffraction, differential thermal analysis and electron microscopic examination. The electron diffraction patterns as well as infrared absorption spectra are proposed to be taken to determine the allophanic character of the soil.

631.41

1255.21 Baser, Badri Lal. Studies on distribution and utilization of manganese in soil. Udaipur, Rajasthan College of Agriculture, Udaipur, 1965-67. Saxena, S. N., Professor and Head of the Department of Agrl. Chemistry & Soil Science, Rajasthan College of Agriculture, Udaipur.

Twenty one soil profiles and about four hundred surface samples from different regions of Rajasthan, based on broad soil classification, have been collected and analysed for various forms of manganese. Its utilization by maize and cowpea at different levels is being studied at different stages of their growth.

631.41

1256.22 Chawla, Om Prakash. Decomposition and maintenance of soil organic matter under tropical conditions. I.A.R.I., Delhi, Soil Science & Agrl. Chemistry, 1964-69. Idnani, M.A., Soil Scientist.

Under tropical conditions, the climatic factors generally oxidise completely the usual type of added organic matter without appreciably affecting the fertility status of the soil. It is proposed to study the effect of addition of resistant types of organic materials rich in lignin on the extent and chemical nature of changes during their decomposition and crop growth.

631.417

1257.23 Dalal, Ram Chander. Physico-chemical investigation of clays and clay minerals with reference to the release and *fixation of trace elements.* I.A.R.I., Delhi, Soil Science & Agrl. Chemistry, 1966-69. Chatterjee, R. K., Asstt. Professor of Physical Chemistry.

Some soils contain appreciable amounts of trace elements that the plants are unable to utilize them due to their non-availability. The ion-exchange behaviour of homoionic and heteroionic clays of silicate minerals and hysteresis in cation exchange are being studied on Indian soil clays. These studies will reveal some possibilities of these trace elements.

631.41

1258.24 Dangarwala, Rameshchandra T. Soil phosphorus fractionation studies. Patel, Agrl. Chemistry & Soil Science, 1966-68. Mehta, B. V., Professor and Head of the Department.

It is proposed to study the soil phosphorus fractionation and the relationship of different soil fractions with the actual uptake of phosphorus by the plant in order to find out the fraction or fractions which contribute the maximum amount of phosphorus to a growing plant. The study will be taken up with five important soils of Gujarat.

631.416

1259.25 Das, Badal Behary. Enhancement of availability of phosphates in Indian soils. Bombay, I.A.R.I., Delhi, 1958-68. Raychaudhuri, S. P., Senior Specialist (Land Resources), Planning Commission, Delhi.

The phosphate solubilization and availability in soils are observed to depend upon chelation and complex formation of insoluble phosphates with substances produced by microorganisms which have specific pH, carbon and nitrogen requirements. The phosphate solubilization in different soil types in the presence of various quantities of nitrogen and carbon is being studied.

631.416

1260.26 Das, Nikhil Ranjan. Studies on soil fertility under intensive cropping system in aman (winter) paddy land. Kalyani, Agronomy, 1965-68. Sen, S., Professor and Head of the Department.

Cropping system for irrigated aman paddy land of West Bengal has been intensified. It is sought to increase the yield of transplanted wheat and aman paddy, fertilizing the wheat crop only. The possibility of introducing jute or green-manuring in the cropping system, after wheat, will be explored. Different ways of increasing the overall production of crops consistent with the maintenance of soil fertility will also be studied.

631.42

1261.27 Ghosal, Tapankumar. Phosphate status of West Bengal acid soils. Calcutta, Chemistry, 1963-67. Chakrabarti, Shibnarayan, Asstt. Professor of Chemistry, Presidency College, Calcutta.

631.41

1262.28 Gopalaswamy, Venketeswaran. Studies on the physico-chemical and biological effects pertaining to the laterite and lateritic soils of Kerala. Kerala. Agricultural College & Research Institute, Vellayani, 1965-67. Nair, C.K.N., Principal and Addl. Director of Agriculture (Research), Agricultural College & Research Institute, Vellayani.

Laterite and lateritic profile soils will be studied for their site characteristics, physical properties, granulometric details, pH, organic carbon, exchangeables, R_2O_3, SiO_2, Fe_2O_3 etc., and the analysis of the clays will be done by modern techniques. The research will include micro-morphological studies of thin sections, mineralogical examination of the sand fractions, microbiological studies, such as, microflora contents, and other specific problems related to weathering.

631.41

1263.29 Gurcharan Singh. Clay mineralogy of black soils in relation to structure and productivity level. I. A. R. I., Delhi, Agrl. Physics, 1964-69. Dakshinamurti, C., Head of the Division.

The representative black soil profiles of India will be analysed for their clay mineralogy and nutrient level status by physico-chemical techniques. The influence of clay mineralogy on the soil structure, cation exchange capacity and productivity level will also be worked out by suitable experiments.

631.41

1264.30 Hanuman Ram. Studies on anaerobic and partially aerobic soils. Banaras, Agriculture. 1965-67. Sant Singh, Professor of Agrl. Chemistry, College of Agriculture, Varanasi.

The work includes the physical, chemical and biological properties of karail, paddy and pond soils. The physico-chemical studies are being made only in relation to the biological behaviours in the soils. Special emphasis will be laid on the nitrogen fixation by Clostridium pasteurianum at different mineral concentrations and soil conditions.

631.41

1265.31 Karwasra, S. P. S. Mineralisation of organic sulphur in Punjab soils. Punjab Agrl., Soils, 1964-68. Sekhon, G. S., Assoc. Professor.

A field experiment is in progress to determine the correlation between organic sulphur mineralisation and sulphur uptake in different soils. The effect of organic matter, organic compounds containing sulphur, sulphate sulphur, drying and variation in pH on mineralisation of organic sulphur will be studied.

631.417

1266.32 Lallan Singh. Studies on the kankar nodules of some soils of the Vindhyan region of Mirzapur. Banaras, Agriculture, 1965-67. Sant Singh, Professor of Agrl. Chemistry, College of Agriculture, Varanasi.

The work includes mainly the kankar formation in the soil profiles of Vindhyan region collected from Mirzapur District. Special emphasis will be laid on the factors responsible for the formation in these soils. Kankar nodules will be synthesised under the laboratory conditions. The possible correlations between the mineralogical composition of the soils and kankar will also be studied.

631.41

1267.33 Laura, Ram Dhari. Nitrogen status and humification in saline and alkaline soils. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1965-68. Idnani, M. A., Soil Scientist.

The study is designed to examine the amount and chemical nature of organic matter and nitrogen in saline and alkaline soils. The study will be supported by detailed laboratory examination of the various aspects of the process of decomposition and transformation of added organic matter and nitrogen as influenced by different alkali salts.

631.417

1268.34 Meelu, O. P. The chemistry of added zinc in Punjab soils. Punjab. Agrl., Soils, 1964-67. Randhawa, N. S., Professor and Head of the Department.

Two crops of maize have been selected for studying the availability of zinc from different sources to maize. Organic and clay fractions have been separated from soils developed under different agro-climatic conditions. The reaction of zinc with these fractions is under study.

631.41

1269.35 Miglani, Mandhir Kumar. Studies on the effects of nutrients on crop growth on saline-alkali soils of different soil test values. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1964-68. Ramamoorthy, B., Special Officer, Soil Testing Scheme.

The Baule unit and critical limits for sufficiency as affected by texture of the soil, saline and saline-alkali conditions will be evaluated using dwarf varieties of rice and wheat, in respect of N, P & K in Delhi soil in the course of pot culture experiments.

631.42

1270.36 Mishra, Vishnu Kumar. The evaluation of tests for available soil phosphorus for major soil types of M.P. J.N.K.V., Jabalpur, Chemistry, 1963-67. Tamboli, P. M., Professor and Head of the Department.

Twelve important soil types of Madhya Pradesh have been collected and analysed for available phosphorus by six different extractants. Pot culture experiment on wheat has been conducted for three years. Bansal dose of N and K has been given, while that of P varied from 0 to 150 lbs. The yield of wheat has been recorded and plant samples are being analysed for P uptake. The data will be analysed and the correlation established.

631.42

1271.37 Patel, Chimanbhai A. Selenium in soils and fodders of Gujarat. Patel, Agrl. Chemistry & Soil Science, 1966-68. Mehta, B. V., Professor and Head of the Department.

A large quantity of selenium in fodder is likely to have toxic deleterious effect on the animals consuming the fodder. The study will throw light on the possibility of any bad effect on animal nutrition as selenium in fodder is derived from the soils in which the crop grows. Availability of selenium will be studied. The study will, however, be confined mainly to the milk producing areas.

631.416

1272.38 Patel, Kalidas A. Symptoms of zinc deficiency and toxicity in common crops of Gujarat. Patel, Agrl. Chemistry & Soil Science, 1966-70. Mehta, B. V., Professor and Head of the Department.

631.41

1273.39 Ramasubramonian, Payanom Ramanarayana Iyer. Fixation of potassium in soils of Kerala. Kerala, Agricultural College & Research Institute, Vellayani, 1964-67. Brito-Mutunayagam, A. P. A., Professor, Agricultural College & Research Institute, Vellayani.

An attempt is being made to study the mechanism of potassium fixation and release in the soils of Kerala State. The factors affecting fixation and the influence of lime on the availability of potassium will also be studied.

631.41

1274.40 Ramesh Kumar. Studies in soil colloids : Nitrogen transformation with Assam coal, lignite etc., as energy material. Jodhpur, Chemistry, 1966-69. K. Kant, Reader.

Indian soils, with the exception of black cotton soil, are generally deficient in both the organic matter and nitrogen. It is proposed to analyse the soil and study nitrogen transformation with Assam coal, lignite, wheat straw etc., as energy materials, in an attempt at improving the nitrogen status of the soils.

631.41

1275.41 Roy, Bhubneshwar. Fertility building under grasses and other soil ameliorants, like celax, spenthop, F. Y. M. etc., in the sandy loam soils. Kalyani, Agronomy, 1966-69. Chatterjee, B. N., Agronomist.

It is proposed to study the effect of grasses and other soil ameliorants on some of the important physico-chemical properties of soils. Agronomic appraisal of these improvements will be made through growing two test crops of maize and groundnut.

631.42

1276.42 Sachan, Ram Singh. Studies on the nature of organic matter of some Indian soils. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1966-69. Satyanarayana, K. V. S., Soil Correlator, All India Soil & Land Use Survey.

Selected soil profiles representing major groups of Indian soils will be examined for their different morphological and other characteristics. The fractionation of organic matter will be carried out with suitable procedure to assess the differences in its nature under various sets of pedogenic environments.

631.417

1277.43 Shamanna, Subbanna. Effect of titanium on soil properties and plant nutrition. Agrl. Sci., Hebbal, Chemistry & Soils, 1966-69. Perur, Narayana Gunderao, Professor.

The exact role of titanium in plant nutrition or soil properties is not known although it is present in many soils. It is, therefore, proposed to take few typical soils containing varying amounts of titanium and study its effect on soil properties as well as on plant nutrition.

631.42

1278.44 Sharma, Devi Chand. Effect of rotting different organic materials on the soil structure as expressed by the formation of water-stable aggregates and other physical properties of Sabour sandy loam soil versus effect of different crops without the application of organic matter in the soil. Bhagalpur, B. A. College, Sabour, 1963-68. Jha, Parmeshwari Prasad, Professor of Agrl. Chemistry, B. A. College, Sabour.

631.417

1279.45 Shinde, Daulatrao Amritrao. Soil fertility investigations as affected by long term manurial experiments. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1966-69. Ghosh, A. B., Agrl. Chemist.

An attempt is being made through soil fertility investigations in permanent manurial trials to critically assess the cumulative effects of the various manures and fertilizers on cropping pattern. The findings will be utilized for raising soil productivity.

631.42

1280.46 Shome, Kanak Baran. Micronutrient status of upland and lowland rice soils in India. Bombay, I. A. R. I., Delhi, 1958-68. Raychaudhuri, S. P., Senior Specialist (Land Resources), Planning Commission, New Delhi.

The surface soil samples from different paddy growing areas in India have been collected to study their contents of copper, zinc, manganese, iron and chlorine. The estimation of copper, zinc and available and total manganese has been completed and the estimation of iron and chlorine is in progress.

631.416

1281.47 Singhal, Ram Mohan. A study on the formation of Mussoorie soils. Banaras, Agriculture, 1966-68. Sant Singh, Professor of Agrl. Chemistry, College of Agriculture, Varanasi.

The work in progress is confined to the formation of some soils of Mussoorie (U. P.). Nine soil profiles have been collected from the Snowdon estate for the mineralogical and physico-chemical examination. Special emphasis will be laid on the trace elements and organic substances of the soils in relation to their formation.

631.41

1282.48 Sinha, Anirudh Kumar. Influence of soil strength upon root penetration, shoot emergence and growth of crop plants. I. I. T., Kharagpur, Agrl. Engineering, 1966-68. Ghildyal, B. P., Asstt. Professor.

Attempts are being made to study root growth pressures and seedling emergence energies. The cardinal soil strength in different soil types for root penetration and seedling emergence of crop plants will be determined. The morphological and anatomical changes in roots and shoots growing under varying soil strength conditions will also be studied.

631.42

1283.49 Takkar, P. N. Distribution of iron in the Punjab soils. Punjab Agrl., Soils, 1963-66. Bhumbla, D. R., Dean, College of Agriculture, Hissar.

A number of profiles from different soil regions of Punjab, Haryana and Himachal Pradesh have been selected for study. The distribution of iron in various forms, such as, available, exchangeable, extractable and total, as also that of manganese, such as, available, exchangeable, easily reducible and total have been determined. The correlations with different soil properties, particularly pH, calcium carbonate, organic matter and clay content have also been worked out. The effect of additions of different quantities of organic matter and calcium carbonate at different moisture levels on the availability of iron and manganese is being studied.

631.41

1284.50 Trivedi, Bhaskarray S. Correlation of phosphorus soil test with the response of alfalfa, Medicago sativa L., grown in Goradu soil through modified Mitscherlich's equation. Patel, Agrl. Chemistry & Soil Science, 1966-68. Mehta, B. V., Professor and Head of the Department.

631.42

1285.51 Venkataratnam, Lukka. The effect of exchangeable K^{+}, Mg^{+}, and NH^{+}_{4} on physical, chemical and biological properties of soils. Agrl. Sci., Hebbal. Chemistry & Soils, 1966-69. Perur, Narayana Gunderao, Professor.

Four different types of soils having different texture and mineralogical composition have been adjusted to graded exchangeable K , Mg^{+} and NH^{-}_{4} saturation. The soils, so prepared, will be studied for their various physical, chemical and biological properties.

631.41

Soil Physics

1286.52 Arora, Ram Prakash. Studies on soil structure in relation to crop rotation, root growth and manurial practices. I. A. R. I., Delhi, Agrl. Physics, 1965-68. Dakshinamurti, C., Head of the Division.

The work is being done on soil structure as affected by crop rotation, fertilizer treatment—organic and inorganic, and root distribution. The rotation includes wheat —Sonora-64 and bajra—hybrid HB1, conducted for 2 seasons. A radioactive isotope method of measuring root distribution with P^{32} is being used. For measurement of soil structure, hydraulic conductivity at minimum compacted bulk density a sensitive index of soil strcuture is being used along with other standard methods.

631.43

1287.53 **Chaudhary, Tej Narain.** Effect of soil temperature on growth and yield of rice crop. I. I. T., Kharagpur, Agrl. Engineering, 1965-67. Ghildyal, B. P., Asstt. Professor.

The effect of soil temperature regimes at various growth stages of rice crop in natural and controlled conditions is being investigated. Constant and alternated temperatures for germination, emergence and seedling vigour have been studied. The crop growth in controlled temperature regimes 18°C--12°C, 32°C--20°C, 37°C--25°C, and 42°C--30°C is under study.

631.436

1288.54 **Jana, Ranjit Kumar.** Influence of soil moisture regimes on the growth and yield of rice under three agro-meterological environments. I. I. T., Kharagpur, Agrl. Engineering, 1964-67. Ghildyal, B. P., Asstt. Professor.

It is proposed to study the influence of agro-meterological conditions associated with optimum soil moisture regime for maximum rice yields and identify the growth stages most susceptible to lack of water and thereby economise water use for maximum rice yields.

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631.432

1289.55 **Kar, Sandipta.** Soil physical conditions affecting rice root growth. I. I. T., Kharagpur, Agrl. Engineering, 1966-68. Ghildyal, B. P., Asstt. Professor.

The nature and growth of rice root system is being studied under various soil physical conditions, like texture, particle size distribution, temperature, aeration, moisture stress and atmospheric humidity. The roles of main and adventitious root systems will also be studied with nutrient solution culture.

631.43

1290.56 **Lahiri, Saradindu.** Performance of wheat under varying levels of soil moisture, soil reaction and different dates of seeding I. I. T., Kharagpur, Agrl. Engineering, 1966-69. Pande, H. K., Asstt. Professor.

Investigations are in progress to ascertain the role of low soil pH and short winter in limiting the cultivation of wheat. The adequate amount of irrigation water needed for successful growth of wheat plants will also be determined.

631.43

1291.57 **Mohan Rao, Madala Sree Rama.** Studies on the effects of compaction of soil on the growth and yields of different crops and its effect on the physical properties of Soil. I. A. R. I., Delhi, Agrl. Physics, 1965-68. Kathavate, Y. V., Experimental Physicist.

Different crops will be grown in soil compacted to different bulk densities and the effects on the growth and yield observed. Hydraulic conductivity will be measured in situ at different densities. Nutrient uptake as affected by compaction will be studied using P^{32} and S^{35}. Ionic diffusion will aslo be studied at different densities by using Cl^{36}.

631.43

1292.58 Mohsin, M. Aftab. Moisture stress in plant and soil in relation to irrígation scheduling and crop yield. I. I. T., Kharagpur, Agrl. Engineering, 1966-69. Ghildyal, B. P., Asstt. Professor.

The plant growth and crop yields are controlled directly by plant moisture stress and indirectly by soil moisture stress. A study of the relationship between plant and soil moisture stress at different growth periods of some cultivated crops is being conducted. Methods are being evolved to measure these relationships in relation to irrigation scheduling and crop yield.

631.432

1293.59 Narale, Ratnakar P. Effect of soil moisture stress on water uptake, physiological processes and morphology of rice. I. I. T., Kharagpur, Agrl. Engineering, 1966-68. Ghildyal, B. P., Asstt. Professor and Mukherjee, R. K., Lecturer.

It is proposed to study the effect of soil water pressure on water uptake, physiological processes as transpiration, ion uptake etc., and anatomical adjustment of rice plant. This study will help maximize the rice production within the limits of the water available.

631.432

Soil Microbiology

1294.60 Bhardwaj, Krishan Kumar Rattan. Studies on the microbiological decomposition of organic matter in soil. I. A. R. I., Delhi, Microbiology, 1966-69. Gaur, A. C., Microbiologist.

631.46

1295.61 Mishra, Lalji. Biochemistry of soil. I. I. S., Bangalore, Biochemistry, 1966-70. Pillai, S. C., Asstt.Professor.

The object of this investigation is to collect evidence on the biochemical changes taking place in soil under favourable conditions for plant growth. The investigation will include the influence of mixed becteria in relation to other microorganisms especially the protozoa, on the changes of nitrogen and phosphorus.

631.46

Crop Production

1296.62 Bhattacharyya, Buddhadeb. Studies in crop production on lateric uplands. Calcutta, Agriculture, 1963-67. Sen, P. K., Professor and Head of the Department.

631.5

1297.63 Dharampal Singh. Transfer of mutants. Calcutta, Agriculture, 1965-67. Sharma, M. S, Lecturer.

631.523

1298.64 Sidhu, Ajit Singh. Studies on the field activity and nesting behaviour of some andrenid bees in the Punjab, Punjab Agrl., Zoology--Entomology. 1964-67. Atwal, A. S., Professor and Head of the Department.

Three species of andrenid bees viz. Andrena ilerda, A. levilabris and A. leana have been selected to study the role of wild bees in pollination of agricultural crops in India. These bees are very important agents of cross pollination in toria, sarson, raya and tara mira.

631.533

Cultivation Techniques

1299.65 Bandyopadhyay, Kanailal. A study on the effect of competition in some crops. Calcutta, Agriculture, 1962-67. Bhaduri, P. N., Professor of Botany, Burdwan University.

631.582

1300.66 Jagdish Singh. Adoption of farm planning by farmers to improve the profitability of their farms. I. A. R. I., Delhi, Agrl. Extension, 1964-68. Khan, A. R., Head of the Division.

631.58

1301.67 Jana, Praphulla Kumar. Yield and consumptive use of water by maize and cowpea green fodder in relation to irrigation, plant population and nitrogen fertilization. I. A. R. I., Delhi, Agronomy, 1963-67. Bains, S. S., Head of the Division.

Experiments have revealed that an increase in the available soil moisture plant density and nitrogen dose increased the yield as well as consumptive use of water by the forage. Protein content of forage also increased with the increase in nitrogen doses, but decreased with the increase in plant density and available soil moisture. Formulae of Penman and Thornthwaite will be used with a suitable factor for predicting the consumptive use of water by the forage crop.

631.587

1302.68 Sharda, Vrandavan. Residue management of different kharif crops and fertilization of wheat in one year *rotations of wheat. I. A. R. I., Delhi, Agronomy, 1963-67. Ambika Singh, Crop Production Specialist. Extension Directorate.*

The effect of managing the residues of two graminaceous crops, jowar and maize, and three leguminous crops, guar, cowpeas and moong, on subsequent wheat crop has been worked out. The opportunity cost of green manure in green manure-wheat rotation will be determined on the basis of the data collected.

631.582

1303.69 Sharma, Ram Prasad Roy. Nature of the residual effect of winter legumes in winter legume-maize rotation. I. A. R. I., Delhi, Agronomy, 1963-67. Ambika Singh, Crop Production Specialist, Extension Directorate.

The avenues and channels through which berseem, senji and peas affect the growth and yield of subsequent maize crops have been worked out quantitatively, on a loamy soil of I. A. R. I., in a field experiment. The restorative effect of berseem on soils, artificially compacted to different bulk densities, will also be elucidated.

631.582

Irrigation & Water Conservation

1304.70 Arjun Prasad Singh. Quality and use of irrigation water in Varanasi Division, U. P. Banaras, Agriculture, 1966-68. R. M. Singh, Reader, College of Agriculture, Varanasi.

It is proposed to assess the quality of irrigation water from different sources commonly used in Varanasi Division. Water samples collected from different places of Ghazipur and Varanasi Districts have been analysed for $Co_3^{=}$, HCO_3^{-}, Cl^{-}, Ca^{++}, Mg^{++}, E. C. and the analysis for $So_4^{=}$, No_3^{-}, Na^{+}, K^{+}, B, Mn^{++} is in progress. A similar study of the water samples of Jaunpur, Ballia, and Azamgarh Districts will also be undertaken.

631.7

1305.71 Patel, Ambalal Sendhabhai. Utilisation of saline water for crop production. I. A. R. I., Delhi, Agronomy, 1964-67. Dastane, N. G., Agronomist.

Saline waters are normally harmful and unsuitable for irrigation purposes. Experiments are being conducted under field conditions to know if these waters can be used for crop production.

631.7

1306.72 Sharma, Harish Chandra. Relationship between can-evaporation, pan-evaporation and evapotranspiration. I A. R. I., Delhi, Agronomy, 1964-67. Dastane, N. G., Agronomist.

The relationship between can-evaporation, pan-evaporation and evapotranspiration is being investigated for rapid and precise estimation of consumptive use of water by crop plants and for scheduling irrigation to them.

631.7

Fertilizers & Soil Conditioners

1307.73 Bajwa, M.S. Root cation exchange capacity as a factor in alkalinity tolerance. Punjab Agrl., Soils, 1964-68. Bhumbla, D.R., Dean, College of Agriculture, Hissar.

The effect of nitrogen, phosphorus and calcium on the cation exchange capacity of roots has been studied and the effect of different levels of exchangeable sodium 'in the presence of varied amounts of nitrogen and phosphorus' on the plant growth and ion uptake is being studied.

631.825

1308.74 Das, Shri Krishna. Studies on salt and alkali tolerance of some important agricultural, forage and vegetable crops and trees of Uttar Pradesh. Agra, Department of Agriculture, U.P., 1964-67. Mehrotra, C. L., Agrl. Chemist to Govt. of U.P., Kanpur.

It is proposed to study the salt, salt and alkali and alkali tolerance of important agricultural crops, namely, wheat, barley, oats, gram, pea, lentil, maize, jowar, cotton and paddy; salt and alkali tolerance of vegetable crops viz., cabbage, cauliflower, beans, spianch, tomato and carrots; and salt andalkali tolerance of trees, shrubs, weeds and grasses, namely, babul, dhak, neem, shisam, imli, jamun, oak, jhasheri, baisuri, jawasa, argimon mexicana, usar grass, dub and rhode grass.

Ind. Jour. Agrl. Sci. 31 (4) ; p. 284-294.

631.82

1309.75 Hegde, Bangareshwar Ramachandra. Relative response of different varieties of three rabi cereals to different depths of fertilizer placements on a saline soil with high water table. I.A.R.I., Delhi, Agronomy, 1964-67. Bains, S.S., Head of the Division.

Three varieties of wheat, barley and oats grown without irrigations, on soils with surface salinity up to 15 cm. and high water table between 100-150 cm., applying a mixture of 40N, 20P and 20K per hectare applied at three different depths, viz., broadcast, 10 cm.

and 20 cm. has shown a consistent high yield in all crops and varieties with deeper placements.

631.811

1310.76 Mishra, Badri Prasad. The study of effect of N, P and K fertilizers, singly and in combination, on the yield and quality of T-1193-2 and local varieties of linseed and on oil in V.P. region of M.P. J.N.K.V., Jabalpur, Agronomy, 1959-68. Kalawkar, R.J., Director of Agriculture (Retd.), Madhya Pradesh, Bhopal.

631.813

1311.77 Nair, K.R. Studies on fixation of nitrogen by serve common legumes of Kerala. Kerala, Agricultural College & Research Institute, Vellayani, 1965-68. Nair, C.K.N., Principal and Addl. Director of Agriculture (Research), Agricultural College & Research Institute, Vellayani.

The investigation aims at studying the fixation of nitrogen by two common legumes of Kerala in presence of a set of trace elements. The trace elements are manganese, molybdenum, iron. copper, zinc and boron. Calcium and magnesium are also included in the study through field and pot experiments.

631.811

1312.78 Nambiar, E.P. Nutrient ratios of plant is a function of the same in soil. Kerala, Agricultural College & Research Institute, Vellayani, 1965-68. Nair. C.K.N., Principal and Addl. Director of Agriculture (Research), Agricultural College & Research Institute, Vellayani.

It is proposed to study the nutrient content—N,P,K, Ca and Mg—in four crops grown under varying amounts of N,P,K, Ca and Mg applied in the field. The quantitative relationships between the applied and absorbed nutrients will be studied besides the interaction of these nutrients on the quantitative variations of nutrient ratios in plants.

631.811

1313.79 Rana Arjun Singh. Studies on mineral nutrition of certain crops. Banaras, Agriculture, 1965-67. Garg, O. K., Reader in Plant Physiology, College of Agriculture, Varanasi.

Experiments have been planned to study the effect of various mineral nutrients on crops, like wheat and hybrid maize. A pot experiment to assess the response of silicon in combination with various nitrogen and phosphorus treatments, under different photoperiodic conditions, with special reference to lodging has also been designed. The uptake of nutrients like N,P,K, and Si by plants is being studied. Another experiment to evaluate the response of silicon and cobalt on hybrid maize, Ganga 101, is also in progress to study their effects on the production of grain and forage by corn plants.

631.811

1314.80 Sarkar, Amarendra. Effect of phosphorus and calcium fertilization on nitrogen. Calcutta, Agriculture, 1965-67. Sen, P.K., Professor and Head of the Department.

631.811

1315.81 Sharma. Puran Prakash. Studies on the phosphate and nitrogen nutrition with irrigation in V.P. region of M.P. J.N.K.V., Jabalpur, Agronomy, 1959-68. Kalamkar, R. J., Director of Agriculture (Retd.), Madhya Pradesh, Bhopal.

631.811

Nitrogen Fertilizers

1316.82 Abhairaj Singh. Relative efficiency of soil and foliar application of nitrogen and phosphorus on the yield and mineral uptake and grain quality of bajra, Pennisetum typhoides. I.A.R.I., Delhi, Agronomy, 1966-69. De, Rajat, Agronomist.

An experiment has been planned to evaluate the efficiency of foliar applied nitrogen and phosphorus on the yield of bajra. Three rates each of nitrogen and phosphorus will be tried in two methods—soil application, half soil and half foliar application.

631.84

1317.83 Banarasi Lal. Studies on the response of turnip crop to soil and foliar application of nitrogen, phosphorus and potassium at different soil moisture regimes. I. A. R. I., Delhi, Agronomy, 1964-67. De, Rajat, Agronomist.

An experiment has been planned to evaluate the efficiency of fertilizer use through foliar fertilization and that of the optimum water use by the turnip crop. The results have shown that foliar application is not a better substitute for soil application of the fertilizers. Irrigating the crop at a soil moisture tension of 0.25 atmosphere has yielded best results.

631.84

1318.84 Bhat, Subrahmanya K. K. Transformation of natural and applied nitrogen and phosphorus in relation to plant growth and yield. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1964-68. Idnani, M. A., Soil Scientist.

The investigation is designed to examine the chemistry of transformation of natural and applied nitrogen and phosphorus to study the efficiency of uptake of these nutrients by crops and on this basis, explain the variations in yield of the same variety of corn crop observed on different soils under the same fertilizer treatments.

631.84

1319.85 Chaudhuri, Bichitra Bijoy. Relative efficiency of utilization of soil and foliar application of nitrogen and phosphorus by tomato. I. A. R. I., Delhi, Agronomy, 1963-67. De, Rajat, Agronomist.

The results of the experiment indicate that half soil+half foliar application of both nitrogen and phosphorus is a better method of application than only soil application. Foliar applications of nitrogen and phosphorus are 2.8 and 1.97 times more effective than the corresponding soil application of the nutrients.

631.84

1320.86 Lahiri, Jyoti Ranjan. Relative efficiency of soil and foliar application of nitrogen on growth, yield, quality and uptake of nutrients in mustard, Brassica juncea coss. I. A. R. I., Delhi, Agronomy, 1964-67. De, Rajat, Agronomist.

The results of the field experiment indicate that half soil+half foliar method of nitrogen application is better than full soil application of nitrogen. A response of 13.2 kg of mustard seed per kg of N application has been obtained with 60 kg soil + 20 kg N/ha foliar application which is the highest efficiency of nitrogen application.

631.84

1321.87 Lakhdive, Balkrishna Abarao. Efficiency of utilization of fertilizer nitrogen applied to rice as affected by rates, sources, nitrification inhibitor treatment and varieties. I. A. R. I., Delhi, Agronomy, 1965-68. Rajendra Prasad, Agronomist.

It is intended to study the possible increase in efficiency of utilization of fertilizer nitrogen as affected by rates—0,40,80 and 120 kg. N/ha, sources—$NaNO_3$, $(NH_4)_2 (SO_4)$, nitrification inhibitors—N-serve and AM, and crop varieites—Taichung native-1 and N. P. 130, under upland paddy conditions obtained at Delhi.

631.84

1322.88 Narasimham, Ramayanam Lakshmi. Some physical and chemical factors limiting the response of wheat to soil nitrogen and phosphorus. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1964-67. Ramamoorthy, B., Special Officer, Soil Testing Scheme.

The contribution of available nutrients—N, P and K—in various depths of soil, and the effects of source of nitrogen, application of micronutrients, and the method of application of phosphorus and potassium—broadcast, placement and foliar spray—on plant uptake of these nutrients and yield of wheat, Sonora 64, are under study.

631.84

1323.89 Panwar, Karan Singh. Varietal cum fertilizer trial with oilseeds crops on a saline soil with high water table. I. A. R. I., Delhi, Agronomy, 1965-69. Bains, S. S., Head of the Division.

The experiment is designed to study the relative performance of three varieties each of mustard, linseed and safflower to different levels of nitrogen fertilization on a highly saline soil with high water table.

631.84

1324.90 Prasada Rao, Dhulipalla Mallikharjuna Vara. Studies on the efficient use of nitrogenous fertilizers. I. A R. I., Delhi, Soil Science & Agrl. Chemistry, 1966-68. Datta, N. P., Head of the Division.

Fertilizer nitrogen labelled with N^{15} applied to wet land rice will be traced in plant uptake, leaching losses, gaseous losses and retention in different fractions in soil to arrive at the balance sheet for applied nitrogen.

631.84

1325.91 Pratap Narain. Nitrification inhibitors and efficiency of nitrogenous fertilizer use for wheat and paddy. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1966-68. Datta, N. P., Head of the Division.

N serve will be used at the rates of 2-4 p. p. m. to reduce rates of nitrification of applied N fertilizers. The nitrite. nitrate and ammonical/amide forms of N will be estimated at different stages. The accounts of leaching and gaseous losses of nitrogen uptake by crops and N in organic forms in soil will be maintained to arrive at efficiency of use.

631.84

1326.92 Rajale, Gopinath Babasaheb. Agronomic evaluation of some slow acting nitrogenous materials for rice. I. A. R. I., Delhi, Agronomy, 1966-69. Rajendra Prasad, Agronomist.

Since upland paddy conditions as obtained at Delhi lead to considerable loss of applied nitrogen, it is intended to study whether these losses can be reduced by the use of slow acting nitrogenous materials, such as, urea-form, oxamide and 'AM' and 'N-serve' treated urea.

631.84

1327.93 Chakrabarti, Asutosh. Studies on phosphate interactions in soils. Calcutta, Agriculture, 1963-67. Mukherjee, S. K., Professor.

631.85

1328.94 Motsara, Mali Ram. Studies on the utilization of basic slag as soil amendment and phosphorus source in acid soils. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1965-67. Datta, N. P., Head of the Division.

Crop yields, incubation studies and residual fertility status of maize, peas, paddy and wheat crops grown on acid soils of pH 4.5 to 5.5 reveal that the basic slag supplying 120 kg. P_2O_5 is better than 120 kg. P_2O_5 of super and as good as 120 kg. P_2O_5 of super + 2000 kg. CaO/ha. It is a very good soil amendment, source of various trace elements and substitute for phosphatic fertilizers.

631.85

1329.95 Rishi, Amrit Kumar. Effect of variable proportions of water soluble and citrate soluble phosphorus in phosphatic fertilization on crop growth as affected by various soil conditions. I. A. R. I., Delhi. Soil Science & Agrl. Chemistry, 1965-69. Idnani, M.A., Soil Scientist.

The study is designed to evaluate the ratios of water soluble and citrate soluble components of phosphatic fertilizers for the different soil and climatic conditions of the country and their effect on the growth and yield of crops.

631.85

1330.96 Sharma, Ashok Kumar. Studies on phosphate and molybdenum fertilization in legume — wheat rotation. J. N. K. V., Jabalpur, Agronomy, 1965-67. Garg, Kanti Prasad, Professor.

The application of phosphorus resulted in an increase in green matter yield of cowpea and guar while molybdenum has shown adverse effect on the yield and growth characters under study. The residual effect of both phosphorus and molybdenum does not show up on the yield of succeeding wheat crop.

631.85

1331.97 Sinha, Ashwini Kumar. Efficiency of a number of phosphatic fertilizers on different soils of Bihar. I. A. R. I., Delhi, Soil Science & Agrl. Chemistry, 1964-67. Datta, N. P., Head of the Division.

The efficiency of six radio phosphorus — P^{32} tagged phosphatic fertilizers has been tested on four major Bihar soils with paddy and wheat as test crops in relation to uptake and residual effect. Eight different reaction products of different phosphatic fertilizers are also being tested for their P supplying power to plants.

631.85

Plant Diseases & Their Control

Bacterial Diseases

1332.98 Porwal, Shanti. Comparative study of xanthomonas species pathogenic to some economic crop plants with special reference to pectic enzyme production. Udaipur, Plant Pathology, 1966-68. Chakravarti, B. P., Reader.

Several xanthomonas species have been tested for enzymes production. Protopectinase, polygalacturonase, pectin-trans-eliminase and polygalacturonase-trans-eliminase are produced in the basal medium containing 1% sodium polypectate and 1% pectic acid but there is no production of pectin methyl esterase. In case of 3% pectin as stimulating agent, the pathogens tested so far have not yielded any enzyme.

632.3

Fungus Diseases

1333.99 Majumdar, Amitava. Seed bone diseases of common crop plants of West Bengal. Kalyani, Plant Pathology, 1966-69. Chattopadhyay, S. B., Professor and Head of the Department.

The yield of common plants in West Bengal, such as, paddy, wheat, jute etc., suffers heavy loss due to high incidence of seed bone diseases. A comprehensive study of the diseases has been undertaken including the application of suitable fungicides so that these diseases can be substantially controlled.

632.4

1334.100 Mustafee, Tulsipada. Studies on the ecology of some facultatively parasitic fungi inhabiting in soil. Kalyani, Plant Pathology, 1965-68. Chattopadhyay, S. B., Professor and Head of the Department.

It is proposed to study the behaviour of some soil borne facultatively parasitic fungi inciting wilt, root rot and associated troubles in plants in relation to growth, perenuation and build up of the inoculum in the soil to reduce the disease intensity by evolving suitable control measures.

632.43

Animal Pests

1335.101 Kamble, Shripat Tulshiram. Insect parasitology. I. A. R. I., Delhi, Entomology, 1966-69. Subbarao, B. R., Parasitologist.

Ecological studies on the occurrence of egg parasites of jassids are in progress with particular reference to okra and cotton crops. The cultural methods of control, integrated control, will also be studied.

632.6

1336.102 Katiyar, Om Prakash. Bioecology, structure and control of Pseudaletia (Cirphis) unipuncta Haw., the juar and rice army worm. J. N. K. V., Jabalpur, Entomology, 1965-69. Rawat, R. R., Professor and Head of the Department.

632.651

1337.103 Prakash Sarup. Effect of formulation on the toxicity of insecticidal dusts to the larvae of Prodenia litura Fabricius (Noctuidae : Lepidoptera). I. A. R. I., Delhi, Entomology, 1960-67. Pradhan, S., Head of the Division.

The biological efficacy of dusts of p.p'DDT, lindane, endrin, endosulfan, carbaryl, malathion and parathion formulated separately with different carriers, like oxides, carbonates, phosphates, sulphates, hydrates and silicates, has been evaluated against the larvae of Prodenia litura Fab. The toxicity of various insecticides is found to be greatly affected by different carriers. The probable causes for the variations in toxicity are being investigated.

632.6578

Roundworms

1338.104 Chandrasekaran, N. M. Studies on Hirschmanniella oryzae Luc and Goodey, 1964. I. A. R. I., Delhi, Entomology, 1964-69. S. K. Prasad, Nematologist.

Studies will be carried out on the morphology, biology, host-parasite relationship, histopathology and control of Hirschmanniella oryzae.

632.6513

1339.105 Deshmukh, Madhusudan Govind. Studies on Hoplolaimus spp. I. A. R. I., Delhi, Entomology, 1963-68. S. K. Prasad, Nematologist.

Studies on seasonal fluctuations will be carried out on different plant parasitic genera with particular reference to Hoplolaimus spp. Morphology, biology, life cycle, host-parasite relationship, histopathology and chemical control of Hoplolaimus indicus will be studied in detail.

632.6513

1340.106 Krishnamurthy Rao, Bhupalam. Studies on the effect of some plant growth substances and antimetabolites on the development and control of plant parasitic nematodes. I. A. R. I., Delhi, Entomology, 1965-67. S. K. Prasad, Nematologist.

The effects of weedicides, like 2, 4-D, EPTC, Dalapon, MCPB applied at non-phytotoxic doses as soil/foliar application on the development, multiplication, fecundity and sex-ratio of Rotylenchulus reniformis are being studied. Similar studies will also be made with growth hormones, like maleic hydrazide, gibberellic acid, IAA, NAA and amino acid analogue.

632.6513

1341.107 Mukhopadhyaya, Manik Chand. Population dynamics of the plant parasitic nematodes. I. A. R. I., Delhi, Entomology, 1964-67. S. K. Prasad, Nematologist.

The estimation of population, vertical distribution and seasonal fluctuations of plant parasitic nematodes and yield losses caused by them have been studied. The monoculture of crops support more population than rotations and distribution is maximum at 10-20 centimeter depth. Nematodes show seasonal rhythms and lower crop yields.

632.6513

Insect Pests

1342.108 Arora, Manjeet Kaur. Studies on intracytoplasmic microorganisms in some insects of agricultural importance. I. A. R. I., Delhi, Entomology, 1966-69. Bhardwaj, R. K., Asstt. Professor.

The study has been undertaken to establish laboratory cultures of some coreids to obtain different stages of their life cycles. Histological studies of the eggs and the mycetomes of larval instars and adults will help solve the problem of transmission of the microorganisms to the offspring.

632.7

1343.109 Sandhu, Gurdev Singh. Biology and chemical control of sorghum shoot fly Atherigona indica Malloch (Anthomyidae : Diptera). I. A. R. I., Delhi, Entomology, 1964-67. Young, W. R., Specialist, Rockefeller Foundation.

The chemical control of Atherigona indica is being worked out at four different locations in India by soil systemic granulates, insecticide fertilizer mixtures, soil drenches and spray treatments. Various methods of placements of granules are under study for effective control of both A. indica and Chilo zonellus.

632.771

1344.110 Sharma, Lalit Shyam. Studies on the bean leaf miner, Cosmopteryx phaeogastra Meyrick (Lepidoptera : Cosmopterygidae). Udaipur, Rajasthan College of Agriculture, Udaipur, 1966-68. Kushwaha, K. S., Reader in Agrl. Zoology & Entomology, Rajasthan College of Agriculture, Udaipur.

Considerable damage is done by leaf miners, particularly to a number of agricultural crops. It is, therefore, intended to develop rearing techniques and study the morphology, food plants, nature of damage, life history, natural enemies and control measures etc., of the bean leaf miner, Cosmopteryx phaeogastra Meyrick.

632.78

1345.111 Vidya Sagar Singh. Studies on phorate and thiodemeton used against sorghum shoot fly, Atherigonavaria soccata Rond. I.A.R.I., Delhi, Entomology, 1966-69. Jotwani, M.G., Entomologist.

Sorghum shoot fly is one of the serious pests of sorghum. Work done on the control of this pest has shown encouraging results with the two systemic insecticides. It is proposed to investigate the important factors that effect the efficacy of the two insecticides.

632.771

Viral Diseases

1346.112 Kartha, Kutty Krishnan P. E. Studies on the interaction of plant viruses. I. A. R. I., Delhi, Mycology & Plant Pathology, 1965-68. Nariani, T. K., Virus Pathologist.

It is proposed to study the interaction of two or more viruses when growing together in a plant or inoculated on the same host one after another. Two viruses may have antagonistic or synergistic effect when grown simultaneously on the same host. One virus may stop the multiplication of the other or in its presence the other virus may multiply faster. The behaviour of two or more viruses with regard to interaction will be studied quantitatively using local lesion assay hosts.

632.8

Pest Control

1347.113 Dale, D. Effect of insecticides on fruit-set and fruit retention in some important economic crops. I. A. R. I., Delhi, Entomology, 1966-69. Rangarao, P. V., Entomologist.

Studies will be made on the effect of insecticidal treatments on fruit-set and fruit retention in some important crops.

632.951

1348.114 Sharma, Ashok Kumar. Studies on Trichogramma evanescens minutum Riley with a view to improving its efficiency as a biological control agent. I. A. R. I., Delhi, Entomology, 1960-67. Pradhan, S., Head of the Division.

Studies have been made to improve the efficiency of the parasite by rearing it at room conditions as well as in the Stephenson's screen by crossing different strains and by irradiating the pupae with different dosages of gamma radiation. Selective breeding has also been done for increased fecundity, higher proportion of females and better survival at lower humidities and higher temperatures.

632.96

1349·115 Syed Firoz Hameed. Studies on malathion residues on few vegetables. I. A. R. I., Delhi, Entomology, 1965-68. Rattan Lal, Toxicologist.

It is proposed to investigate the persistence of the biological activity of malathion residues on few vegetables from the point of view of control of important insect pests and dissipation of the residues to safe level. Persistence of toxicity of malathion residues will be studied by exposing a pest of the particular vegetable to malathion residues of different ages. Bioassay results will be verified by chemical assay.

632.9

Herbicides

1350.116 Misra, Lakshmishwar Prasad. Studies on the control of weeds associated with aromatic plants. Banaras, Agriculture, 1966-68. Choudhri, R. S., Principal, College of Agriculture, Varanasi and Kapoor, L. D., Asstt. Director, National Botanic Gardens, Lucknow.

Herbicides viz., 2, 4-D, 2, 4, 5-T, MH, MCPA, Aminotriazole phenylurea etc., in lower concentrations, are found to suppress the weeds occurring in Mentha arvensis but higher dosages affect the yield of the crop adversely. The tubers of Cyperus rotundus L. when soaked for different durations in these herbicides, result in complete arresting of the sprouting in the 24 hour steeping period except in case of MH.

632.954

1351.117 Ram Gopal. Control of nutgrass, Cyperus rotundus L. and bermudagrass, Cynodon dactylon Pers., by a combination of mechanical, chemical and cropping methods. I. A. R. I., Delhi, Agronomy, 1963-67. Mani, V. S., Agronomist.

Experiments show that two applications of a mixture of 2, 4-D and dalapon, each at 2 kg aie./ha in conjunction with two ploughings during summer, and raising of hybrid maize in kharif followed by wheat in rabi, control very well the perennial weeds-nutsedge, Cyperus routundus and 'dub' grass, Cynodon dactylon.

632.954

1352.118 Verma, Sardar Singh. Effectiveness of herbicides for controlling Kans, Saccharum spontaneum. J. N. K. V., Jabalpur, Agronomy, 1959-67. Lamba, Prithvi Singh, Director of Agriculture, Madhya Pradesh, Bhopal.

Experiments show that amongst three herbicides, namely, dalapon, simazine and aminotriazole, the application of 10 kg. aie. per hectare of dalapon alone during the post emergence period when the plants are actively growing, controls Kans, Saccharum spontaneum, L., to the extent of about 90% without residual effect in soil or succeeding wheat crop. One heavy ploughing within seven to ten days of herbicidal application is found to increase the efficacy of the herbicides in controlling Kans.

(1) Ind. Jour. Agron. 6(4) ; 1962 : p. 245-259; and (2) ibid. 7(2) ; 1962 : p. 142-147.

632.954

Field Crops

Cereal Grains

1353.119 Bhagwan Prasad Singh. Studies on drought resistance in certain crops. Banaras, Agriculture, 1966-68. Garg, O. K., Reader in Plant Physiology, College of Agriculture, Varanasi.

An experiment to evaluate drought resistance in oats and barley has been designed. On the one hand, it includes an assessment of four varieties of oats with regard to their drought resistance capacity under different wilting conditions, and on the other a study of the effect of gamma radiation on the drought resistance of barley plants. The growth and development of plants are affected under drought conditions. An assessment of the physiological behaviour of plants is under way.

633.1

Wheat

1354.120 Assandas, Mooraj. Irrigation requirements of dwarf Mexican varieties of wheat. I. A. R. I., Delhi, Agronomy, 1965-68. Gautam, O. P., Deputy Director-General (Education), Indian Council of Agricultural Research, Delhi.

It is proposed to work out the irrigation and nitrogen requirements of the newly introduced dwarf wheat varieties, Sonora 64 and Lerma rojo as well as a locally improved tall wheat variety, C 306. The critical stages for application of irrigation as well as the interaction effects of irrigation, nitrogen and varieties will also be studied.

633.1123

1355.121 Balasubramanian, Velayutham. Physiological studies on salt tolerance of wheat. I. A. R. I., Delhi, Botany, 1965-68. Sarin, M. N., Plant Physiologist.

The factors concerned with salt tolerance of two varieties of wheat are being investigated.

633.112

1356.122 Bhendia, Mannu Lal. A study of the extent of water and citrate solubility required in phosphatic fertilizers for wheat. I. A. R. I., Delhi, Agronomy, 1965-69. Rajendra Prasad, Agronomist.

It is intended to work out the water and citrate solubility limits in phosphatic fertilizer for growing wheat.

633.112

1357.123 Chakrabarti, Kanchan Baran. Studies on the disease complex of wheat incited by different species of Helminthosporium. Kalyani, Plant Pathology, 1964-67. Chattopadhyay, S. B., Professor and Head of the Department.

The object of research is to (i) determine the role of different species of Helminthosporium in causing the disease complex, (ii) assess the role of some agronomic, climatic and soil factors on the disease incidence, (iii) detect the method of perpetuation of the disease, and (iv) study the varietal resistance as well as the basis of such resistance both anatomically and biochemically.

633.119651

1358.124 Chattopadhyay, Narayan Chandra. Physiological analysis of growth and yield of a tall and a dwarf variety of wheat. I. A. R. I., Delhi, Plant Physiology & Phytotron, 1963-67. Asana, R. D., Head of the Division.

A study of a dwarf variety of wheat, Sonora 64, and a tall variety, NP 876, has so far indicated that in the case of the former (i) the tillering capacity is slightly higher, (ii) the survival percentage of the tillers is higher, (iii) the rate of dry matter production is less than or equal to that of NP 876, (iv) greater proportion of dry matter goes to the ear than to the stem, and (v) the grain development is less affected by low light intensity.

633.112

1359.125 Devendra Nath Singh. A study of the relation between vegetative period, root growth and grain development of wheat with and without water stress. I.A.R.I., Delhi, Plant Physiology & Phytotron, 1962-67. Asana, R. D., Head of the Division.

The study of eight wheat varieties grown under barani cultivation indicates that with an increase in time of flowering from 70 to 100 days, root growth increases more or less proportionately and the soil moisture from the third foot of soil profile is better exploited. The grain of the 90-100 days varieties ripens during a period in which the mean maximum temperature is about 25°C. The 100-day varieties yield better than the early varieties. It follows that varieties which flower in about 100 days from sowing in October would be better adapted to barani cultivation in sandy loam tracts of North India.

633.1123

1360.126 Jha, Maheshwar Prasad. Monosomic analysis of wheat : Location of genes of dwarfing rust resistance and other characters in Mexican wheats. I.A.R.I., Delhi, Botany, 1965-68. Swaminathan, M. S., Director.

Norin dwarfing genes have helped reconstruction of morphological frame of the wheat plant in a direction conducive to the efficient use of fertilizers. The study aims at identifying the chromosomes on which these genes are located and their inter se dominance relationships.

633.119425

1361.127 Khera, A. S. Studies on heterosis and combining ability in wheat. Punjab Agrl., Plant Breeding, 1964-67. Gill, B. S., Assoc. Professor.

F_1, F_2 and F_3 generations of a diallel cross set of 9 wheat varieties from different geographic regions are being studied at four locations in Punjab. The object is to study heterosis, extent to which it is retained in later generations, adaptability of the parent varieties and their crosses and the gene action involved.

633.1123

1362.128 Krishna Reddy, Ankireddy Palli. Physiological studies of Alternaria triticina Prasada and Prabhu, the causal agent of leaf blight of wheat. I.A.R.I., Delhi, Mycology & Plant Pathology, 1964-67. R. Prasada, Professor and Head of the Department of Plant Pathology, Udaipur University.

The fungus grows best and sporulates at 28°C and at pH 6.0, but does not sporulate in the presence of light. Using glucose as carbon source, good growth and sporulation have been supported by glutamic acid, aspartic acid, glycine and asparagine, but sulphur containing amino acids inhibited growth. The fungus has been partially deficient for thiamine, biotin and riboflavin. Leaf blight depends on physiological maturity of the host. Temporary resistance of young shoots is related to carbohydrate content while permanent resistance is genetic.

633.1194

1363.129 Mahabal Ram. A comparative study of yield and quality characteristics of some of the earlier and recently bred Indian wheat varieties under different conditions of plant nutrition and rust infection. I.A.R.I., Delhi, Botany, 1962-67. Kohli, S. P., Project Coordinator—Wheat.

633.1158

1364.130 Midha, Sunesh Kumar. Further studies on ear-cockle to tundu disease of wheat. I.A.R.I., Delhi, Mycology & Plant Pathology, 1966-69. Gopal Swarup, Plant Pathologist—Nematodes.

It is proposed to study the nature and type of association between nematode and bacterium in ear-cockle and tundu diseases of wheat by histological techniques.

633.1193

1365.131 Narayani Prasad Singh. Water use studies of some dwarf varieties of wheat. I.A.R.I., Delhi, Agronomy, 1965-68. Dastane, N. G., Agronomist.

Indian and Mexican varieties of wheat are being studied for their moisture relations.

633.1187

1366.132 Parvatikar, Shamsunder Ramrao. Physiological analysis of grain development in two varieties of wheat, NP 823 *and NP 824. I.A.R.I., Delhi, Plant Physiology & Phytotron, 1963-67. Asana, R.D., Head of the Division.*

The final grain weight per ear is higher in NP 824 than in NP 823 because the grains of the spikelets other than the ten middle spikelets grow at a slower rate in the latter variety. Light intensity of 250 F.C. depresses grain development considerably during the first fortnight from anthesis, but has little effect during the late stage of grain development.

633.112

1367.133 Patel, Umedbhai Ranchhodbhai. Response of wheat to irrigation and nitrogenous manuring. Patel, B. A. College of Agriculture, Anand, 1963-67. Patel, C. J., Professor of Agronomy, B. A. College of Agriculture, Anand.

The object of the research is to study the effect of different levels of irrigation water at varying intervals in conjunction with different levels of nitrogen on yield and quality of irrigated variety of wheat NP. 824 and also the NPK uptake by wheat crop on sandy loam soil of Gujarat.

633.1187

1368.134 Rai, Bishwendra Prasad. Genetics of rust resistance in wheat. I.A.R.I., Delhi, Botany, 1960-67. Joshi, A. B., Deputy Director-General (Crop Sciences), Indian Council of Agricultural Research, Delhi.

It is proposed to study the interrelationship of genes for seedling resistance to stem rust, Puccinia graminis tritici (Pers.) Erikks. and Henn., in certain varieties of Triticum aestivum L.

633.119425

1369.135 Ramanand Thakur. The effects of seed rates, row spacings and rates and times of nitrogen application on the growth, yield and quality of wheat, Triticum vulgare. Bhagalpur, B. A. College, Sabour, 1964-67. Asharfi Ram, Professor, B. A. College, Sabour.

An investigation to find out the optimum seeding rate and row spacing in relation to the most profitable rate of nitrogen fertilization to wheat crop under the agro-climatic conditions of south Bihar has been carried out in the rabi seasons of 1963-64 and 1964-65 at the Bihar Agricultural College Farm, Sabour.

633.112

1370.136 Saxena, Narendra Prasad. A study of the photosynthetic contribution of the ear to and of the effect of light intensity on the development of grain of two wheat varieties. I. A. R. I., Delhi, Plant Physiology & Phytotron, 1962-67. Asana, R. D., Head of the Division.

Experiments show that the increase in the dry weight of the whole shoot after ear emergence is of the same order in the two varieties of wheat—Pbc. 281 and NP 720, thus indicating that photosynthetic contribution of their ears may be similar. Light intensity of 250 F. C. depresses grain development considerably during the first fortnight from anthesis, but has little effect during the late stage of grain development.

633.112

1371.137 Sengupta, Udayan Kumar. A study of the physiology of growth and development of plants. I. A. R. I., Delhi, Botany, 1964-68. Sirohi, G. S., Plant Physiologist.

The rates of transamination of different systems, such as, glutamic-glycine, alanine-glycine, glutamic-aspartic, alanine-aspartic and glutamic-alanine are being investigated to study the changes induced by varying durations of light on the amino acid metabolism in wheat.

633.112

1372.138 Sett, Aparna. A comparative physiological study of the growth and yield of dwarf and tall varieties of wheat. I. A. R. I., Delhi, Plant Physiology & Phytotron, 1965-68. Asana, R. D., Head of the Division.

The growth of dwarf and tall varieties of wheat is being studied at different plant densities and in different light intensities to compare the efficiency of the two morphological forms of the wheat plant.

633.112

1373.139 Wattal, Poshkar Nath. Effect of light intensity on the growth and yield of two varieties of wheat. I. A. R. I., Delhi, Plant Physiology & Phytotron, 1965-69. Asana, R. D., Head of the Division.

Variety N.P. 824 yields better than variety N.P. 823. A study of the physiological factors contributing to variation in yield is being made.

633.112

Corn

1374.140 Agrawal, Bitthal Das. Estimation of components of genetic variance for yield and other quantitative traits in two varieties of maize and the F_3 population of the intervarietal cross. I. A. R. I., Delhi, Botany, 1963-67. Dhawan, N. L., Project Coordinator—Maize.

The object of the study is to obtain information on the genetic basis of heterosis for yield and other quantitative traits.

633.1558

1375.141 Agrawal, Kailash Chand. Further studies on maize mosaic disease in India. I. A. R. I., Delhi, Mycology & Plant Pathology, 1965-69. Raychaudhuri, S. P., Head of the Division.

The study comprises screening of the germ plasm and determination of sources of resistance in maize against maize mosaic viruses.

633.1598

1376.142 Badhe, Namdeo Tukaram. Effects of soil moisture regimes and herbicides on the yield and quality of hybrid maize, Var. Ganga 3. I. A. R. I., Delhi, Agronomy, 1964-67. Gautam, O. P., Deputy Director-General (Education), Indian Council of Agricultural Research, Delhi.

Simazine, atrazine and randox-T have been evaluated for weed control in hybrid maize. Atrazine @ 1 kg aie/ha. has proved superior at pre-emergence. Weed kill by herbicides has been found inferior under drier soil conditions. Optimum soil moisture regime for Hy. G. 3. Varied from field capacity to 0.65 atm. tension measured at 15 cm. depth.

633.159954

1377.143 Baporikar, Vasant Rambhau. Dry matter production and nutrient uptake of maize as influenced by nitrogen and phosphorus fertilization under two methods of planting. I. A. R. I., Delhi, Agronomy, 1963-67. Baird, G. B., Field Director, Rockefeller Foundation.

The kharif maize crop in Northern India frequently suffers from temporary waterlogging of the soil. Experiments show that adequate N and P fertilization used in conjunction with ridge planting on a poorly drained soil results in markedly increased yield.

633.152

1378.144 Braja Bhoosan Singh. Studies on the production of dual purpose hybrid maize. Banaras, Agriculture, 1965-67. Choudhri, R. S., Principal, College of Agriculture, Varanasi.

High yielding hybrid maize varieties have gained significant recognition in India. Anticipating better economic returns, varietal trials using late and early maturing types, avoiding plant-to-plant competition with different spacings and sowing times have been projected under adequate nitrogenous fertilization. Simultaneous production of grain and fodder crops seems possible.

633.152

1379.145 Handoo, Mohd. Iqbal. Inheritance of resistance in maize to Helminthosporium maydis. I. A. R. I., Delhi, Botany, 1964-68. Renfro, B. L., Specialist, Rockefeller Foundation.

Four disease susceptible and four disease resistant inbred line parents have been selected and inbred and reselected an additional generation. All possible single crosses, F_2's, and backcrosses to both respective parents of single crosses have been made. These, together with parents, will be planted in 1967 kharif at New Delhi and Pantnagar and inoculated and rated for disease reaction.

633.1596516

1380.146 Ijardar, Jaikaran Singh. Phenotypic and genotypic stability of maize composites in relation to generations and locations. I.A.R.I., Delhi, Botany, 1966-69. Dhawan, N. L., Project Coordinator—Maize.

Maize composite populations in early and advance generations will be evaluated for their means and variances for yield and other quantitative traits.

633.1558

1381.147 Jagdish Prasad Singh. Studies on the new downy mildew of maize. I. A. R. I., Delhi, Mycology & Plant Pathology, 1965-68. Renfro, B. L., Specialist, Rockefeller Foundation.

Pathological histology studies have revealed the host tissues invaded by the pathogen, as also where and how the oospores and sporangia are formed. Epidemiological investigations with special reference to the control of disease have also been planned.

633.159452

1382.148 Joginder Singh. Studies on breeding in maize for resistance to the top-shoot borer, Chilo zonellus Swinhoe. I.A.R.I., Delhi, Botany, 1958-67. Dhawan, N. L., Project Coordinator—Maize.

The study deals with the differential response of maize inbred lines to stem borer damage in relation to environment, sources of resistance, and the genetic analysis of resistance.

633.15978

1383.149 Karve, Chandrashekhar Dattatraya. P-Zn interaction in the phosphorus and zinc fertilization of hybrid maize in relation to soil moisture status. I. A. R. I., Delhi, Agronomy, 1965-68. Gautam, O. P., Deputy Director-General (Education), Indian Council of Agricultural Research, Delhi.

It is proposed to investigate the relationship of zinc and phosphorus nutrition of hybrid maize, Var. Ganga 101. The effect of soil moisture status on the availability and response of hybrid maize to Zn and

P will be assessed. Pot culture studies will also be conducted to discern some of the intricate relationships more precisely under better controlled conditions.

633.1523

1384.150 Narmada Shanker. Studies on helminthosporios of maize in Rajasthan. Udaipur, S. K. N. College of Agriculture, Jobner, 1965-67. N. Prasad, Dean, S.K.N. College of Agriculture, Jobner.

It is proposed to study the (i) symptomatology and estimation of losses due to different species of Helminthosporium parasiting corn., (ii) relationship of collateral hosts in the development of diseases, (iii) morphology and development of perfect sexual stages in the parasites, (iv) variability in morphology and virulence, (v) physiology, and (vi) curative measures.

633.159651

1385.151 Rane, M. S. Studies on cephalosporium stalk and kernel rot of maize. I.A.R.I., Delhi, Mycology & Plant Pathology, 1963-67. Payak, M. M., Plant Pathologist.

The work on Cephalosporium acremonium and C. acremonium var. cereum includes: (i) Pathogenicity tests; (ii) Study of the physiology and ability of culture filtrates to induce wilting in tomato cuttings and maize seedlings; (iii) Field evaluation of 47 inbred lines, 8 hybrids and composites by artificial inoculation for stalk and ear rot; and (iv) In vitro screening of some fungicides.

633.15943

1386.152 Rangarajan, M. Investigations on the pathogenic capabilities and control of bacterial stalk rot of maize. Udaipur, Plant Pathology, 1965-67. Chakravarti, B. P., Reader.

Bacteria isolated from rotted maize stalks and seeds of two maize varieties from Rajasthan have proved to be virulent pathogens. They produce soft rots of vegetables. The incubation periods vary for different varieties and are influenced by temperature and age of the plants. Variations in biochemical reactions are being observed with respect to several isolates of the stalk rot pathogen.

633.1593

1387.153 Sharma, Virendra Kumar. Factors affecting the differential resistance of some maize germ plasms to Chilo zonellus, Swinhoe. I. A. R. I., Delhi, Entomology, 1966-70. Chatterjee, S. M., Entomologist.

633.15978

1388.154 Thind, Buta Singh. Studies on bacterial stalk rot of maize. I.A.R.I., Delhi, Mycology & Plant Pathology, 1966-69. Payak, M.M., Plant Pathologist.

Investigations on Erwinia carotovora var. zeae comprise studies on perpetuation and epidemiology, field evaluation of available maize germ plasm to disease by means of artificial inoculation, and application of control measures.

633.1593

1389.155 Yogendra Prasad. Studies on leaf blights of maize. Bhagalpur, B. A. College, Sabour, 1964-67. Misra, Ayodhya Prasad, Professor of Plant Pathology, B.A. College, Sabour.

Maize leaves affected with Helminthosporium turcicum and H. maydis have been collected from various maize growing tracts in India. Studies on the morphology, physiology and pathogenicity of the different isolates of the fungus are in progress. Besides, attempts are under way to produce perithecia in culture. Varietal studies of maize will also be undertaken.

633.1594

Barley

1390.156 Abub Mohammad. Studies in stripe disease of barley caused by Helminthosporium gramineum Rabh. and the variability in the pathogen. Bhagalpur, B.A. College, Sabour, 1965-67. Misra, Ayodhya Prasad, Professor of Plant Pathology, B.A. College, Sabour.

Six isolates of Helminthosporium gramineum from different parts of India have been studied. They differ in morphology, physiology and pathogenicity. Twenty three barley varieties have been tested. None of the varieties grown in Bihar is completely resistant. Inoculation by planting unhulled seeds on fungus culture or soaking them in mycelium suspension hasbeen successful.

633.1694

1391.157 Bhowmik, Goutam. Cytogenetical studies on certain mutant genotype of barley. Banaras, Agriculture, 1965-67. Das, K., Reader, College of Agriculture, Varanasi.

Since chromosomal interchanges have helped directed-breeding, certain barley interchanges obtained by gamma-irradiation have been crossed with linkage and translocation testers to identify chromosomes and locate the break points for obtaining information on linkage relations. Studies on genetic control of development in a liguleless mutant are in progress.

633.16

1392.158 Dhanraj, Karaminder S. Studies on barley mosaic in India. I.A.R.I., Delhi, Mycology & Plant Pathology, 1965-68. Raychaudhuri, S.P., Head of the Division.

A seed transmission and sap inoculable virus disease of barley has been studied for the first time in India. An intensive crop survey has been done. The properties of the virus, varietal resistance, percentage seed transmission in different varieties of barley and host range have been studied in the glass house experiments. Electron micrographic studies of the virus by the Brandes dip method have also been done. Control by heat therapy is being tried. Insect transmission will also be conducted and the virus identified.

633.1698

1393.159 Dubey, Kailash Narayan. Cytogenetic studies on some lines of irradiated barley. Banaras, Agriculture, 1965-67. Das, K., Reader, College of Agriculture, Varanasi.

Heterozygous translocations with rings of 4 or 6 in gamma irradiated barley have been made homozygous, and then crossed with a set of translocation testers to identify the chromosomes and locate the break points. Crosses with linkage testers have been made to study linkage maps. A search for micromutants to evolve superior lines is in progress.

633.16

1394.160 Kedar Nath Singh. Effect of different doses of nitrogen, phosphorus and potash on the growth, yield and composition of barley, Hordium vulgare, on a saline soil with high ground water table. I.A.R.I., Delhi, Agronomy, 1963-67. Bains, S. S., Head of the Division.

NPK trial has been conducted at I.A.R.I. on barley. The crop responded highly to nitrogen and little to phosphorus with adverse effect of potash under saline cum high water table conditions. The moisture contribution from high water table can meet-the water needs of the crop.

633.1658

1395.161 Raj, K. P. S. Physiology of drought resistance in some varieties of barley. Gujarat, Botany, 1966-70. Chinoy, J.J., Professor and Head of the Department and Shah, C.K., Reader.

Estimations of carbohydrates, starch and reducing sugars are being carried out in two varieties of barley. The assaying of DNA [and RNA in drought series and photoperiod series is also in progress.

633.16912

1396.162 Rasheeduddin Ahmad. Study of the mineral nutrition of barley with particular reference to some aspects of metabolism affecting its marketing quality. Aligarh, Botany, 1965-68. Afridi, M. M. R. K., Reader.

633.162

1397.163 Srivastava, Hari Mohan. Cytogenetic studies on the effects of ionizing radiations on barley. Banaras, Agriculture, 1965-67. Das, K., Reader, College of Agriculture, Varanasi.

It is proposed to study the cytogenetic effects of thermal neutron and gamma radiations on K12 barley in single and recurrent irradiation cycles. While the direct effects in M1 have been recorded, the frequency of induced chlorophyll and viable mutants in later generations are being studied. A study on a set of induced translocations will also be taken up.

633.16

1398.164 Tyagi, Dharmvir Singh. Cytogenetic studies on barley. Banaras, Agriculture, 1966-68. Das, K., Reader, College of Agriculture, Varanasi.

Some mutants, such as, light green semidwarf erectoides and dense spike have been detected in gamma irradiated K12 barley. The manner of inheritance of these characters and also the linkage relations of the genes are being studied. Crosses have been made with various linkage testers. Backcross and F_2 data will be analysed.

633.16

1399.165 Vyas, Alaknanda Vinitmy. Physiological studies of drought resistance in some Indian and American varieties of barley. Gujarat, Botany, 1966-70. Chinoy, J. J., Professor and Head of the Department.

The effect of desiccation upon metabolism of barley during germination is being evaluated with particular reference to the amylase and the catalase activity. The effect of pretreated seeds upon field sowing will also be studied with special reference to growth data, data of anthesis and ripening periods, and harvest data.

633.16912

Millets & Grain Sorghums

1400.166 Goel, L. B. Studies on Helminthosporium turcicum, the causal organism of jowar leaf blight. I. A. R. I., Delhi, Mycology & Plant Pathology, 1966-70. Joshi, L. M., Plant Pathologist.

Work on variability of the fungus has been initiated. It is intended to be extended to 7 to 8 isolates including one from maize also. Factors for production of perfect stage under laboratory conditions will be worked out. Use of chemical fungicides for the control as well as screening of world collection of jowar under conditions of artificial epidemics will also be carried out.

633.1794

1401.167 Kochhar, Pritpal Singh. Relative efficiency of soil and foliar application of nitrogen and phosphorus on the yield and nitrogen uptake of Sorghum vulgare L. I. A. R. I., Delhi, Agronomy, 1966-69. De, Rajat, Agronomist.

An experiment has been planned to evaluate the efficiency of foliar applied nitrogen and phosphorus on the yield of Sorghum. Three rates each of nitrogen and phosphorus will be tried in two methods—soil application, half soil and half foliar application.

633.17458

1402.168 Nema, Krishna Gopal. Epidemiology studies on smut of bajra caused by Tolyposporium penicillariae. I. A. R. I., Delhi, Mycology & Plant Pathology, 1966-68. Joshi, L. M., Plant Pathologist.

The study comprises identification of the kind and quality of airborne infection, mode of infection, details of floral infection and identification of the factors involved in the determination of the number and distribution of sori on infected spikes.

633.1749427

1403.169 Puranik, Kishore Krishnarao. Studies on the blast disease of ragi caused by Piricularia sp. I. A. R. I., Delhi, Mycology & Plant Pathology, 1965-68. Joshi, L. M., Plant Pathologist.

It is proposed to investigate the mode of perpetuation of the disease, host infection, histopathology and method of control by chemical means.

633.17194

1404.170 Rangil Singh. Biochemical changes during the growth and development of bajra, Pennisetum typhoides, and jowar, Sorghum vulgare. Punjab Agrl., Chemistry—Biochemistry, 1964-67. Bhatia, Iqbal Singh, Professor and Head of the Department.

About three hundred samples of bajra, jowar and EB_4 have been collected regularly after ten day intervals of their growth period. The activity of transfructosidase and hydrolysing enzymes has been studied during the earing stage. A detailed study of carbohydrates, both qualitative and quantitative, along with the proximate analysis of these samples is in progress.

633.17

1405.171 Roy, Rabindra Nath. Nutrient uptake studies with Sorghum vulgare L. I. A. R. I., Delhi, Agronomy, 1966-69. Wright, B. C., Assoc. Soil Scientist, Rockefeller Foundation.

The object of the research is to characterize the accumulation with time of dry matter, nitrogen, phosphorus, potassium and possibly other elements in

Sorghum vulgare L. The procedure, in brief, is to sample periodically a replicated crop of Sorghum, partition these samples into leaves, stems and ear heads, and estimate dry matter, %N, % P and % K. Appropriate uptake values may then be calculated.

633.1742

1406.172 Subbayya, Jonna. Studies on a new ragi disease. I.A.R.I., Delhi, Mycology & Plant Pathology, 1966-68. Raychaudhuri, S. P.. Head of the Division.

The disease is a limiting factor for the profitable cultivation of ragi in Mysore and parts of Andhra Pradesh. So far a virus and two fungi have been isolated. The virus causing severe mosaic symptoms is mainly responsible for disease development. It is proposed to identify the virus and study the possible role of other associated pathogens in causing the disease syndrome, their nature, interactions, if any, host range, dissemination, varietal reaction etc.

633.17194

1407.173 Tiwari, Man Mohan. Epidemiology and host parasite relationship of Sclerospora graminicola on bajra. Rajasthan, Botany, 1964-67. Arya, Harish Chandra, Reader.

Green ear disease of bajra is one of the most important diseases of cereals in Rajasthan. Initiation and perpetuation of the disease take place through infected seed. Conidia also takes part in aerial and secondary infection. In vitro detailed physiological studies have been done on tissues from healthy and diseased plants and the obligate parasite established on healthy tissue. Histopathological studies have been done on the diseased plant. Studies are in progress to control the disease. It will have bearing on the cultivation and yield of bajra, a very important cereal of Rajasthan.

633.1749

Rice

1408.174 Agrawal, Ramesh Kumar. Determination of optimum field spacing for rice varieties of different plant habits grown at different levels of fertilization in different seasons. I.I.T., Kharagpur, Agrl. Engineering, 1966-68. Pande, H. K., Asstt. Professor.

The investigation is planned to provide information on the performance of rice crop transplanted under varying spacing and geometry, different levels of fertilization and different seasons. The solar radiation received by the plants under different seasons will provide interaction effect of the variables. The most suitable *combination of the variables leading to maximum favourable performance of the crops in each season will be investigated.*

633.1858

1409.175 Bhatia, Prakash Chandra. Water management practices in paddy. I.A.R.I., Delhi, Agronomy, 1964-69. Dastane, N. G., Agronomist.

The effect of different water regimes on the yield of Indian and newly introduced exotic varieties of rice, Taichung native 1 and IR—8, is being studied. The role of water as weed control measure is being assessed. Critical periods for moisture in relation to the yield of the crop vis-a-vis water supply will also be ascertained.

633.1887

1410.176 Bhattacharya, Sankar Prasad. Studies on weed control in upland and lowland rice by herbicidal and cultural methods. Kalyani, Agrl. Extension, 1965-68. Mukhopadhyay, Sisir Kumar, Lecturer.

The object of the research is to find out (i) an effective method of weed control in upland and lowland rice, (ii) the nutrient losses by weeds and consequent uptake by the crop due to control of weeds, and (iii) the phytotoxicity of the new herbicides, if any, on the crop plants or soil microflora.

633.189954

1411.177 Bhattacharyya, Asim Kumar. Nitrogen supply of rice plant. Calcutta, Agriculture, 1964-67. Bhaduri, P. N., Professor of Botany, Burdwan University.

633.182

1412.178 Bhattacharyya, Rabindra Kumar. Genetical investigations to breed rice strains resistant to saline conditions. Calcutta, Botany, 1963-67. Richaria, R. H., Director, Central Rice Research Centre, Cuttack.

633.1823

1413.179 Brajesh Rai. Investigation into the possibilities of improvement in cultural methods of paddy. Banaras, Agriculture, 1966-68. Mahatim Singh, Professor of Agronomy, College of Agriculture, Varanasi.

Different methods of cultivation, like drilling and transplanting, will be studied under different amounts of seed rates, spacing, age of seedlings and time of sowings. Chemical weed control by stam F-34, different amounts of nutrients, types of fertilizers and their method of application will also be studied in detail.

633.183

1414.180 Chakraborty, Sib Nath. Genetical and physiological studies in rice from hybrids and induced mutants. Kalyani, Cytogenetics & Plant Breeding, 1966-69. Sen, Subir, Reader.

A study on genetics and physiology of some exotic and local varieties of rice from induced mutants and hybrids has been undertaken. Various radiogenetical effects in x_1 and x_2 generations in respect of different physiological and morphological characters have been studied. Selection with reference to quantitative and qualitative traits is in progress.

633.1823

1415.181 Dasgupta, Dilip Kumar. Physiological studies on water relation to rice. Calcutta, Agriculture, 1962-67. Sen, P. K., Professor and Head of the Department.

633.182

1416.182 Gangopadhyay, Srijib. Studies on nitrogen relationship and epidemiological development in the brown spot disease of rice incited by Helminthosporium oryzae. Kalyani, Plant Pathology, 1965-68. Chattopadhyay, S. B., Professor and Head of the Department.

The investigation aims at finding out the relationship of incidence of brown spot caused by Helminthosporium oryzae at different levels of nitrogen to recommend optimum dose of nitrogen for minimum disease incidence. The epidemiology of the disease will also be studied to formulate a basis for forecasting it to take timely preventive measures.

633.1896516

1417.183 Gupta, Vinod Kumar. Some project on virus diseases of rice. I. A. R. I., Delhi, Mycology & Plant Pathology, 1966-70. Raychaudhuri, S. P., Head of the Division.

633.1898

1418.184 Iyer, Rohini. Studies on the bacteriophages of Xanthomonas oryzae, the incitant of bacterial blight disease of rice. I. A. R. I., Delhi, Mycology & Plant Pathology, 1966-69. Srivastava, D. N., Plant Bacteriologist.

The use of bacteriophages in identifying and differentiating strains of phytopathogenic bacteria is a new and interesting field. It is proposed to standardize techniques for assessing populations of the bacterial blight pathogen in the water at different stages of investigation by phage typing to forecast epidemics of the disease. It is also intended to investigate the relationship between the DNA content of the phages and the latter's variability in virulence, plaque morphology and bust size etc.

633.1893

1419.185 Jai Sankar Singh. Physiological studies in rice. Calcutta, Agriculture, 1965-68. Sen, P. K., Professor and Head of the Department.

633.18

1420.186 Johnson, Joseph. A subject in entomology. Kerala, Agricultural College & Research Institute, Vellayani, 1964-68. Gopalakrishnan Nair, M. R., Professor of Entomology, Agricultural College & Research Institute, Vellayani.

Studies on the biology and control of Spodoptera mauritia Boisd, a major pest of paddy, are in progress.

633.1899

1421.187 Krishna Mohan, Suryadevara. Nature of resistance in rice to bacterial blight. I. A. R. I., Delhi, Mycology & Plant Pathology, 1966-69. Srivastava, D. N., Plant Bacteriologist.

Whereas most of the rice varieties, particularly, the indica type, are highly susceptible to the disease, a few of the indica and many of the japonica varieties have been found to be resistant. It is intended to investigate the nature of resistance in the latter varieties, in which morphological as well as biochemical aspects will be examined.

633.1893

1422.188 Kuriyan, K. John. Studies on the host-parasite relationship of rice root nematode, Hirschmanniella oryzae, with particular reference to nutritional status of the crop. I. A. R. I., Delhi, Entomology, 1965-69. Pradhan, S., Head of the Division.

Studies have been undertaken to determine the influences of host and host nutrition on nematode development, reproduction and pathogenicity.

633.1896513

1423.189 Mane, Vasant Dariba. Water management practices for rice. I. A. R. I., Delhi, Agronomy, 1966-69. Dastane, N. G., Agronomist.

For maximum yield in paddy, it is necessary to submerge field to a depth of about 4-5 cm. This practice results in heavy percolation losses inflating water requirement of rice. Whether this practice of land submergence can be dispensed with or not is being studied under field conditions.

633.1887

1424.190 Manna, Gostha Behari. Studies on nutritional requirement of high yielding rice variety grown on lateritic soils of West Bengal. I. I. T., Kharagpur, Agrl. Engineering, 1965-68. Pande, H. K., Asstt. Professor.

The macro and micro elements required under lateritic soil conditions for maximizing rice yields are being investigated. This requirement of the crop under different climatic conditions will also be studied.

633.1823

1425.191 Mukhopadhyay, Nilangshu. Studies on the incidence and intensity of disease of rice under continuous cropping and high fertility conditions. Kalyani, Pathology, 1965-67. Chattopadhyay, S. B., Professor and Head of the Department.

It is proposed to study the incidence and intensity of diseases of rice and their environment relationship; rhizosphere microflora changes with disease development; soil chemical and electrochemical influences on plant metabolism and disease incidence; and the bacterial blight of rice, its pathogen, environment and nutrition relations, disease-induced host-metabolic changes and potentiality of different varieties as resistance source.

633.1893

1426.192 Nema, Dwaraka Prasad. Morphological, cytogenetical and breeding studies in Oryza sativa L. J.N.K.V., Jabalpur, Botany, 1961-67. Tiwari, Devendra Kumar, Professor and Head of the Department.

Biometrical studies have established the highest contributory yield effect of fertile spikelets, weight per panicle and effective tillers per plant respectively. Straight selection vs. discriminant functions indicated an equivalent efficacy of the former as a tool for plant breeders. Augmentation in number of fertile spikelets and effective tillers is a notable manifestation of heterosis. The study of ecades and ecotypes of wild rice has helped better understanding of Oryza complex. The work is in progress.

633.18

1427.193 Om Prakash. Chemical weed control in paddy field. Banaras, Agriculture, 1966-68. Mahatim Singh, Professor of Agronomy, College of Agriculture, Varanasi.

It is proposed to test the chemical herbicides viz. Stam F-34, Tok-Granular and M. C. P. A. (Phenoxylene-30) in the paddy fields in Eastern U.P. The study will be confined to the action of the herbicides combinations. The experiments will be repeated twice and the final recommendations made available after thorough examination.

633.18958

1428.194 Pandey, Khushi Ram. Epidemiology of bacterial blight of paddy. I.A.R.I., Delhi, Mycology & Plant Pathology, 1965-68. Srivastava, D.N., Plant Bacteriologist.

At present there is no clear understanding about the epidemiology of bacterial blight of paddy under Indian conditions. This information is necessary to formulate proper preventive and control measures. How does the disease manifest in single-cropped areas ? What is the source of primary inoculum and at what stage the crop is affected ? Are the roots susceptible to infection and does the pathogen enter roots and stem ? What is the course of the bacterium in the plant tissues ? These are the broad questions which will be investigated.

633.1893

1429.195 Paul, Amita. Ecology of mycoflora of paddy fields. Kalyani, Plant Pathology, 1966-68. Chattopadhyay, S. B., Professor and Head of the Department.

It is proposed to work out the ecological relationship of rice field mycoflora, both qualitative and quantitative, under principally different physico-chemical and cultural conditions. The distribution of the fungi at near and away the roots will be determined. The role of the dominant species in the biology of soils as related to crop production and soil fertility will also be assessed.

633.18942

1430.196 Purnachandra Rao, Yalamanchi. Studies on the bacteriophages of Xanthomonas oryzae, the causal organism of bacterial blight disease of rice. I.A.R.I., Delhi, Mycology & Plant Pathology, 1964-68. Srivastava, D. N., Plant Bacteriologist.

The work done in the laboratory has revealed several phage types which differ in host specificity and plaque size. Employing phage and bacterial strains, it is intended to investigate in detail the environmental relationships between strains of phages and the pathogen. The seed transmission and epidemiology of the disease will also be investigated with the help of these phages.

633.1893

1431.197 Satyanarayam, T. Soil oxygen diffusion, ion uptake and rice growth. I.I.T., Kharagpur, Agrl. Engineering, 1964-67. Ghildyal, B. P., Asstt. Professor.

The critical oxygen diffusion rates in the soil are known for several crops but no such information is available for rice crop. Experiments have been planned to study the oxygen diffusion in soil and its relation to rice growth.

633.182

1432.198 Shekhawat, Girdhari Singh. The epidemiology of bacterial streak disease of rice. I. A. R. I., Delhi, Mycology &

Plant Pathology, 1966-69. Srivastava, D. N., Plant Bacteriologist.

At present nothing is known about the perpetuation of the bacterial streak disease of rice in nature from one season to another. It is intended to examine soil, infected debris, seed and weed hosts as sources of primary inocula to develop satisfactory control measures for the disease.

633.1893

1433.199 Shukla, Dharma Deo. Studies on bacterial blight of paddy caused by Xanthomonas oryzae, Uyeda and Ishiama, Dowson. Udaipur, Plant Pathology, 1965-67. Chakravarti, B. P., Reader.

A bacterium identified as Xanthomonas sp. has been isolated from paddy seeds of N. P. 130. It produces severe blighting of paddy leaves on artificial inoculation. Another bacterium isolated from diseased paddy leaves has been identified as a species of Pseudomonas. Preliminary studies have indicated that hot water treatment along with the combination of antibiotics and fungicides can eliminate the pathogen from seeds.

633.1893

1434.200 Sukumaran, Kesavan Madhavan. Studies on photosynthesis of rice plants. Kerala, Agricultural College & Research Institute, Vellayani, 1965-67. Nair, C. K. N., Principal & Addl. Director of Agriculture (Research), Agricultural College & Research Institute, Vellayani.

It is proposed to study (i) the influence of mineral nutrients, like N, Mg and Ca on photosynthetic activity and yield of rice crop, and (ii) the interaction between N and Mg, Mg and Ca, N and spacing-light factor, and Mg and spacing-light factor in relation to their influence on photosynthetic activity of rice plants under field conditions.

633.18

1435.201 Tyagi, Karam Singh. Sulphide injury in low land rice. Banaras, Agriculture, 1966-67. Sant Singh, Professor of Agrl. Chemistry, College of Agriculture, Varanasi.

A pot experiment has been designed to study the toxic effects of hydrogen sulphide on paddy crop produced as a result of application of amm. sulphate in waterlogged conditions and to find out some suitable remedy to overcome the disorder. The effect on the uptake of nutrients, respiratory and photosynthetic activities, and growth characters of the plant has been studied. The study of synthesis of protein in grain samples is in progress.

633.18

1436.202 Vamadevan, V. K. Water management practices for rice. I. A. R. I., Delhi, Agronomy, 1964-67. Dastane, N. G., Agronomist.

The optimum moisture regime for maximum yield of paddy has been found to be submergence of land to a depth of about 5 cm. from transplanting to flowering, and from saturation to field capacity during the period from post flowering to maturity. It has been found that percolation loss forms a major part in water needs of rice. This loss can be reduced if land is put under irrigated rice on the basis of its degree of percolation. A new and simple technique for the assessment of percolation and effective rainfall has been suggested. New system of land classification has been evolved for economic and efficient use of irrigation water.

Review of techniques employed in assessment of water requirement of rice in India. Proceedings of international rice research meeting, Lake Charles, Lousiana, U.S.A., 1967.

633.1887

1437.203 Varma, Suresh Chandra. Manurial and irrigational studies on paddy. Banaras, Agriculture, 1966-68. Mahatim Singh, Professor of Agronomy, College of Agriculture, Varanasi.

It is proposed to study the differential effect of nitrogen, phosphorus and potash levels under different moisture status of the soil. The investigation is confined only to an indica variety, Taichung Native-1. The experiments will be repeated twice and conclusions drawn after careful analysis.

633.182

1438.204 Verma, Jugal Kishore. Chemical weed control in paddy. I. A. R. I., Delhi, Agronomy, 1965-68. Mani, V. S., Agronomist.

Field trials have been started to study the role of herbicides in paddy cultivation. It has been observed that besides its herbicidal value Stam F-34 (3, 4-dichloropropiananilide) exerts an additional stimulatory role on seed production in transplanted Taichung Native-1 paddy.

633.189954

1439.205 Verma, Sailendra Kumar. Response of rice to split application of nitrogenous fertilizer under varying levels of moisture and organic matter content of soil. I.I.T., Kharagpur, Agrl. Engineering, 1966-68. Pande, H.K., Asstt. Professor.

The object of the investigation is to induce a healthy reducing condition in the rice soil with the interaction of suitable level of soil water and organic matter content. The healthy reducing condition so obtained will affect the uptake of nutrients, nitrogen, phosphorus, iron and manganese. A suitable split level of the application of ammonical nitrogen in accordance with the base exchange capacity of soil will avoid losses of nitrogen and benefit the crop.

633.182

1440.206 Virendra Kumar. Effect of rhizospheric oxygen concentration on nutrient uptake and growth of rice. I.I.T., Kharagpur. Agrl. Engineering, 1966-69. Ghildyal, B. P., Asstt. Professor.

The effect of changing oxygen concentration of soil atmosphere on many crops is known. The rhizospheric conditions of paddy are, however, different from other cultivated plants. It is proposed to study the effect of rhizospheric oxygen concentrations in soil on the growth and uptake of nutrients by rice plant under unsaturated and flooded condition.

633.18875

Forage Crops

1441.207 Wayse, Shrirang Bhagwan. Effect of cultural and phosphorus treatments on berseem and senji under saline conditions. I.A R.I., Delhi, Agronomy, 1964-67. Bains, S. S., Head of the Division.

An experiment has been conducted to study the effect of cultural and phosphorus treatments on the yield of berseem and senji crops under saline conditions—on an average 8 mmh/cm. The inversion of soil before sowing has been found to be a good practice under saline conditions. Presowing irrigation treatment has also proved to be at par with inversion treatment.

633.2

Legumes

1442.208 Ranbir Singh. Response of berseem to different levels of phosphate and zinc. I.A.R.I., Delhi, Agronomy, 1960-68. Bains, S. S., Head of the Division.

Experiments have been carried out to determine the optimum requirement for berseem of phosphorus and zinc. Highly significant response has been obtained due to phosphorus application. However, soil and foliar spray of zinc sulphate at 1, 2 and 3 kg. of Zn. per ha. have not increased the yield of green fodder significantly.

633.322

1443.209 Varshney, M. L. Studies on the growth, yield and quality of berseem, T. alexandrinum L., as affected by phosphorus, boron and molybdenum fertilization. Banaras, Agriculture, 1965-67. Choudhri, R. S., Principal, College of Agriculture, Varanasi.

Berseem as a rabi season fodder crop is gaining importance in the irrigated tracts of Northern India. In order to effect improvement in its quality and quantity, extensive field trials, using phosphorus, boron and molybdenum which have a unique role in plant production, have been made. Results are highly encouraging.

633.32

Cowpeas

1444.210 Khatri, Harbans Lal. Metabolism of resistant and susceptible cowpea varieties infected with cowpea mosaic virus. I.A.R.I., Delhi, Mycology & Plant Pathology, 1965-68. Chenulu, V. V., Virus Pathologist.

The metabolic changes in resistant and susceptible cowpea varieties infected with cowpea mosaic virus are being studied in respect of respiration, carbohydrates, total nitrogen, amino acids, enzymes, metallic elements, organic acids and phenols at the period of maximum virus concentration.

633.3398

1445.211 Ramanujam, K. Metabolic changes due to cowpea mosaic virus in different systemic hosts. I.A.R.I., Delhi, Mycology & Plant Pathology, 1966-69. Chenulu, V. V., Virus Pathologist.

The metabolic changes induced by cowpea mosaic virus in two different systemic hosts will be studied in respect of respiration, carbohydrates, total nitrogen, amino acids, enzymes, organic acids etc., at different intervals of inoculation. This is expected to throw light on the influence of host in metabolic changes brought about by viral infections.

633.3398

Root & Tuber Crops

1446.212 Gemawat, Pravinchandra Dhanraj. Studies on the blight disease of cumin, Cuminum cyminum L., caused by Alternaria burnsii Uppal, Patel and Kamat. Udaipur, S. K. N. College of Agriculture, Jobner, 1965-67. N. Prasad, Dean, S. K. N. College of Agriculture, Jobner.

It is proposed to undertake a survey of the disease to study the variability in the pathogen, epidemiology, physiology of the parasite, host parasite relationship, and curative measures.

633.439

Potatoes

1447.213 Bhaskar, Patkar Moreshwar. Studies in diseases of potato in Maharashtra. Poona, Maharashtra Association for the Cultivation of Science, Poona, 1963-67. Kamat, M. N, Professor of Mycology & Plant Pathology, Maharashtra Association for the Cultivation of Science, Poona.

Detailed studies in field and storage diseases of potato are in progress. The investigations include a study of the occurrence, distribution, economic importance, etiology, varietal resistance and persistence with special reference to early blight, bacterial ring and fusarium rots and wilt.

633.49193

1448.214 Mitra, Dilip Kumar. Studies on inhibition of potato virus Y. I. A. R. I., Delhi, Mycology & Plant Pathology, 1965-67. Raychaudhuri, S. P.. Head of the Division.

The inhibition of PVY in vitro, in vivo and in tissue culture has been studied by using different growth regulators, base analogues, antibiotics and irradiation singly and in different combinations. Each chemical has been applied by different methods and at different concentrations to find out the maximum effect [on the inhibition of PVY.

633.49198

1449.215 Nandi, Paritosh. Studies on the effect of iron and boron on the multiplication and concentration of a ringspot strain of potato virus X. I. A. R. I., Delhi, Mycology & Plant Pathology, 1964-68. Raychaudhuri, S. P., Head of the Division.

Studies have been taken up with six analogues and 2-thiouracil has been found to be more effective in inhibiting the virus. Further studies on the effect of the chemical are in progress so as to understand the causes of inhibition in the systemic host.

633.49198

Fiber Crops

1450.216 Niyogi, Asok Kumar. Cytological and cytogenetical studies of fibre crops. Calcutta, Agriculture, 1963-67. Datta, R. M., Lecturer.

633.5

1451.217 *Guhe, Yeshwant Shrawan. Study of Nitrogen and moisture requirements of cotton in black cotton soils of Vidarbha. Nagpur, Govt. College of Agriculture, Akola, 1966-68.* Padoley, G. C., Professor of Agrl. Chemistry, Govt. College of Agriculture, Akola.

A pot culture experiment using representative black soils—deep, medium and alluvium—has been laid out, maintaining the moisture levels at 80-70%, 60-50% and 40-30% of their field capacity with application of three nitrogenous fertilizers—ammonium sulphate, nitrate, and urea @ 40, 80 and 120 lb. N per acre. The field experiment on the split plot design has also been laid out on the medium black soil of College Farm, Akola. Buri 147, a recommended variety of cotton, has been used under irrigated conditions in these experiments during the current year. The work is in progress.

633.51

1452.218 Radke, Sudhir Gopalrao. Varietal resistance in cotton to the attack of bollworms and other insects. Nagpur. Agrl. Entomology, 1965-68. Katiyar, R. N., Entomologist, Regional Research Centre, Amravati.

The cotton crop is attacked by many insect pests and heavy losses accrue every year. An experiment is, therefore, being conducted on thirty varieties of cotton, like G. arboreum, G. hirsutum, G. barbadence etc., collected from all over the country. On replicated trial, the observations on all these varieties will be recorded on the lines suggested by Painter, to study their resistance to bollworms, aphids, jassids, thrips etc., in the light of preference or non-preference. antibiosis and tolerance.

633.51975

1453.219 Shroff, Vinodlal Natwarlal. Establishment of translocation stocks and substitution lines between the upland cotton Gossypium hirsutum and the Asiatic species G. herbaceum and G. arboreum. I. A. R. I., Delhi, Botany, 1966-68. Srinivasachar, D., Geneticist.

To combine the good fibre properties of the upland cottons with the adaptive base and disease and insect resistance of the Asiatics, crossing and back crossing between them will be so arranged as to get pentapoloids and hexapoloids. These seeds will be irradiated and the resulting progeny studied for chromosome substitution translocations. The work is in progress.

633.5123

Flax

1454.220 Bachhitar Singh. Cytogenetic studies of interspecific hybrids in genus Linum. Punjab Agrl., Genetics, 1963-67. Kalia, H. R., Dean, College of Agriculture, Palampur.

An investigation has been undertaken to determine the chromosome number of Linum bienne and L. grandiflorum and work out the evolutionary relationship of four species. The gametic chromosome number (n) has been found to be 15 for L. bienne, L. decumbens and L. usitatissimum and 8 for the species L. grandiflorum. On the basis of pollen germination and pollen tube growth, the former three species seem to have developed ecospecific level among themselves and cenospecific level with L. grandiflorum.

633.5223

1455.221 Yadava, T. P. Biosystematic studies of the genus Linum. Punjab Agrl., Genetics, 1963-67. Kalia, H. R., Dean, College of Agriculture, Palampur.

The cytogenetic study of interspecific cross among four species of genus Linum—L. usitatissimum, L. muelleri, L. corymbiferum and L. grandiflorum—has revealed that the chromosome number (n) of the first three is 15 while that of the last is 8. The crossability among the species of the same chromosome number is high while they exhibit complete isolation from L. grandiflorum.

633.5223

Jute

1456.222 Ghosh. Nabinananda. Studies of variabilities in jute followed by irradiation and hybridization. Kalyani, Cytogenetics & Plant Breeding, 1965-68. Sen, Subir, Reader.

Isolation and study of mutants and their hybrids and the biochemical sequence of events leading to some variations are in progress to understand the nature of genetic background and the degree of its response to radiations.

633.5423

1457.223 Mohammad Manjur Hossain. Cytogenetical studies of induced mutation and colchiploids of some cultivated varieties of jute. Kalyani, Cytogenetics & Plant Breeding, 1966-69. Sen, Subir, Reader.

Some interesting variations have been isolated on the basis of morphological selection in case of first generation. The cytological analysis of the induced colchiploids and mutants is in progress.

633.5423

Sugarcane

1458.224 Bhide, Vasant Shankar. *Biometrical studies on the quality aspect and its components in clones of S. officinarum L.* Agra, Sugarcane Breeding Institute, Coimbatore, 1966-68. Thuljaram Rao, J., Director, Sugarcane Breeding Institute, Coimbatore.

40 S. officinarum clones, 5 each from 8 different countries, planted at three locations—Coimbatore, Palghat and Cannanore, have been observed with reference to growth, yield and quality characters. The observations have been recorded varietywise and groupwise. Upon analysis, significant differences are revealed within the groups and between the groups in respect of growth and yield characters. The data collected for quality characters is being analysed. The character and material evaluation and interdependence of the characters on its components will also be determined by recent biometrical techniques.

633.6123

1459.225 Cheema, S. S. Evaluation of growth factors affecting yield and quality of sugarcane under varying moisture regimes and manuring. Punjab Agrl., Agronomy, 1964-67. Moolani, M. K., Professor and Head of the Department.

The effect of three moisture regimes and three nitrogen levels on growth, yield and quality of three varieties of sugarcane is being investigated to determine the water requirement, consumptive use value, rate of water use and moisture depletion pattern, and to correlate the evapo-transpiration values with weather factors by use of various equations.

633.612

1460.226 Choudhary, Paramanand. Herbicide use in rotation to irrigation for weed control in sugarcane. I.A.R.I., Delhi, Agronomy, 1966-69. Mani, V. S., Agronomist.

A pre-emergence spray of a combination of simazine and 2, 4-D followed by cultivations has been found to control a large spectrum of weeds in sugarcane. Field investigations have been initiated for assessing the effect of pre-monsoon irrigation on the herbicidal efficiency and selectivity of triazines and 2, 4-D.

633.619954

Starch Plants

1461.227 Menon, M. Ramanatha. Studies on the mosaic of cassava, Manitol utilissima Pohl. I.A.R.I., Delhi, Mycology & Plant Pathology, 1966-69. Raychaudhuri, S. P., Head of the Division.

It is proposed to study the symptomatology, transmission of the virus and its relationships to the vector, host range of the virus and inactivation of the virus from two infected tissues by the application of chemicals and heat.

633.6898

1462.228 Sadasivam, Kavandapadi Venkataramanan. Studies on the rhizosphere and phyllosphere of tapioca. Annamalai, Agriculture, 1963-67. Mahadevan, A., Reader.

Studies on the rhizosphere of five varieties of tapioca in relation to their HCN content are in progress. Both qualitative and quantitative analysis of the microbial population of the rhizosphere and that of their HCN content has been done. Inoculation studies are also being attempted.

633.68

Alkaloidal Crops

1463.229 Naik, Mahendra Nathubhai. Effect of irrigation as influenced by date of planting and manuring of bidi tobacco, N. tabacum L. Patel, B. A. College of Agriculture, Anand, 1964-67. Patel, C. J., Professor of Agronomy, B. A. College of Agriculture, Anand.

The newly evolved strain Anand. 3, has been found to be superior to Keliu-20, the previously improved selection of bidi tobacco. It matures late by 15 days and may also respond well to irrigation and higher doses of manuring. It is intended to study the effect of irrigation as influenced by date of planting and manuring. Uptake studies for the major elements will also be undertaken.

633.7187

Tea

1464.230 Das, Subbas Chandra. Biology and control of some tea pests with special reference to scarcit mill. Calcutta, Botany, 1963-67. Das, G. M.

633.72996

1465.231 Harbir Singh. The problems of weed control in tea. Gauhati, Tocklai Experimental Station, Jorhat, 1964-67. Sharma, K. N., Senior Agriculturist, Tocklai Experimental Station, Jorhat.

Field experiments have been planned on the use of herbicides for weed control in nursery, young and mature tea. The study will comprise effects of different herbicides in varying doses, time of application and various combinations on different species of weeds and green crop, and the ultimate effect on the growth of nursery, young and mature tea, health and vigour of tea plants and the made tea yield and quality.

633.72958

Poppies

1466.232 Kothari, Kundan Lal. Studies on powdery and downy mildew diseases of opium poppy, Papaver somniferum Linn. Udaipur, S. K. N. College of Agriculture, Jobner, 1965-67. N. Prasad, Dean, S. K. N. College of Agriculture, Jobner.

The research comprises a survey and studies in symptomatology, histopathology and morphology of the parasites, recognition of races, nature and recurrence of the diseases, and curative measures.

633.7594

1467.233 Shekhawat, Gokul Singh. Uptake and effect of nitrogen phosphate and potash on the growth and yield of poppy, Papaver somniferum L. Udaipur, Rajasthan College of Agriculture, Udaipur, 1965-67. R. M. Singh, Dean, Rajasthan College of Agriculture, Udaipur.

Morphological and yield data from field experiments conducted in 1964-65 and 1965-66 are being statistically analysed. Chemical analysis of plants and experimental plots is also in progress.

633.752

Plants for Industrial Processing

For Flavourings

1468.234 Durga Prasad Singh. Physiological studies in the phosphorus nutrition of Mentha arvensis var. piperascens. Banaras, Agriculture, 1965-67. Jai Narain Singh. Lecturer, College of Agriculture, Varanasi.

It is proposed to study the effects of phosphorus deficiency on growth, nutrient uptake, metabolism and synthesis of peppermint oil and menthol by M. arvensis var. piperascens, and to find out the optimum dose of phosphorus for the maximum production of peppermint oil and menthol. The results obtained from pot studies will be tested under field conditions.

633.82

1469.235 Pandey, Krishna Nand. Agronomic studies on fennel, Foeniculum vulgare. Banaras, Agriculture, 1965-67. U. S. Singh, Reader in Agronomy, College of Agriculture, Varanasi.

The research includes investigations on planting methods, population density, age of seedlings, pre-planting treatments and fertilization with major and second nutrients.

633.82

1470.236 Priya Ranjan Kumar. Cytogenetic studies on the effects of ionizing radiations on some varieties of mustard. Banaras, Agriculture, 1965-67. Das, K., Reader, College of Agriculture, Varanasi.

The relative effects of gamma thermal neutron irradiation on some varieties of Brassica campestris L., and Brassica juncea Coss., are under study. The characters being studied are germination and survival, rate of growth, flowering behaviour, pollen size, pollen and ovule sterility and different fruit characters in M_1 and later generations. Cytological studies are in progress. Micro-mutational studies on the basis of some of the above characters are also being carried out.

633.84

1471.237 Rai. Tej Bahadur. Physiological studies in the nitrogen nutrition of Mentha arvensis, var. piperascens. Banaras, Agriculture, 1965-67. Jai Narain Singh, Lecturer, College of Agriculture, Varanasi.

Mentha arvensis var. piperascens has been introduced into India recently. Not much work has so far been done to study its growth and metabolism under Indian conditions. The present investigation seeks to study the effects of nitrogen deficiency on growth, nutrient uptake, metabolism and synthesis of essential oils and menthol and also the optimum dose and best period of application of N for maximum production of essential oils and menthol under sand and soil culture conditions. Field trials are also being undertaken.

633.82

1472.238 Shukla, Vishnu. Agronomic and chemical studies of turmeric, Curcuma longa L., with special reference to its nutrition. Banaras, Agriculture, 1965-67. Jai Ram Singh, Reader, College of Agriculture, Varanasi.

It is proposed to study the role of major and minor plant nutrients supplied in the form of organic and inorganic fertilizers. The growth, yield behaviour and chemical constituents of turmeric as affected by various plant nutrients are under investigation.

633.832

For Nonvolatile Oils

1473.239 Deshpande, Amrut Martand Rao. Relationship between date of sowing, plant population and manuring on growth and development of linseed. Nagpur, College of Agriculture, Nagpur, 1962-68. Joshi, K. G., Principal (Retd.), College of Agriculture, Nagpur.

Linseed is an important oilseed crop grown in Maharashtra. But its yield per acre is rather low. It is, therefore, proposed to find out the optimum sowing date, spacing, plant population and manurial requirement of the linseed crop for obtaining higher yields.

633.85

1474 240 Sengupta, Kalyanbrata. Linkage studies in linseed using translocation stocks. I.A.R.I., Delhi, Botany, 1964-67. Rajan, S. S., Geneticist.

An attempt is being made to analyse the genetical control of floral pigment production in linseed. Chromosomes have been marked by inducing reciprocal translocations, and these marked stocks have been crossed with tester stocks with known genetic constitution. Segregating progenies from these crosses have been studied for their flower colour and chromosome translocation and linkage between colour genes has also been analysed.

633.8523

Orchards & Small Fruit

1475.241 Arora, Jagdish Singh. Nutritional studies on fruit plants by foliar application. Banaras, Agriculture, 1965-67. Jai Ram Singh, Reader, College of Agriculture, Varanasi.

Experiments have been conducted to study the effect of macro and micro nutrients on guava and that of nitrogen on mango as foliar sprays. Observations have been completed with regard to carbohydrate and nitrogen content and their effect on fruiting behaviour and the yield of the fruit trees. Physico-chemical studies of fruits have also been made and encouraging results obtained.

634

Drupaceous Fruits

1476.242 Chundawat, Bhupal Singh. The effect of plant regulators on the yield and quality of phalsa, Grewia asiatica L. I.A.R.I., Delhi, Horticulture, 1964-67. Ranjit Singh, Horticulturist.

The effect of GA and auxins, like 2, 4-D, PCPA, 2, 4, 5-T, 2, 4, 5-TP and NAA, on the fruiting, yield, fruit quality and anatomy of phalsa has been studied.

Combinations of GA with auxins have given encouraging results.

634.23

1477.243 Vaishnawa, Jai Deo Prasad K. Studies into the growth, flowering and fruiting behaviour of phalsa, Grewia asiatica L., in relation to certain nutrients and cultural practices. Banaras, Agriculture, 1965-67. Jai Ram Singh, Reader, College of Agriculture, Varanasi.

Phalsa is known to be best suited for this locality. Various major and minor elements have been specially selected for this experiment under different forms of organic as well as inorganic manuring in field and pot. The studies are primarily confined to the growth, flowering, fruiting behaviour of plants and fruit analysis.

634.232

Citrus & Moraceous Fruits

1478.244 Chauhan, S. P. S. Investigation into the causes of decline in sweet orange. Punjab Agrl., Horticulture, 1964-67. Nauriyal, J. P., Professor and Head of the Department.

It is proposed to investigate the translocation and condition of phloem tissues in the healthy and declining trees. Besides anatomical studies of phloem tissues, accumulation of nitrogenous and other organic substances near the bud union will be investigated. An attempt will also be made to determine the nature of pigment produced at the union point in declining trees.

634.312

1479.245 Raturi, Govind Ballabh. Investigations of the causes of seasonal variation in zinc and other micronutrients and nematodes in citrus and their control measures. I.A.R.I., Delhi, Horticulture, 1964-68. Mukherjee, S. K., Head of the Division.

The investigations are being carried out to determine the causes of seasonal variation in Zn, Cu, Mn and Fe content and other macro elements in citrus leaves and soil in Delhi, Sri Ganga Nagar and Nagpur area. The effectiveness of different concentrations of zinc sulphate in the rectification of chlorosis and dieback symptoms is also being tested.

634.3

1480.246 Shende, Gangadhar Balaji. Morphological, anatomical and some physiological responses of the fruits of Citrus reticulata Blanco, var. Nagpuri Santra to the differential application of nitrogen and plant growth regulators. I. A. R. I., Delhi, Horticulture, 1962-67. R. N. Singh, Horticulturist.

The object of the research is to study the effect of different levels and methods of nitrogen fertilization and different concentrations of GA and maleic hydrazide on fruit set, growth and quality of Nagpuri Santra in split plot design. It seems advisable to fertilize the trees partly through soil application and partly through foliar sprays.

634.31

1481.247 Vasantharajan, Velamur Narasimhan. Interrelations of microorganisms and mulberry. I. I. S., Bangalore, Fermentation Technology Laboratory, 1964-67. Bhat, J. V., Professor.

The mulberry plant is found to have a selective epiphytic and saprophytic microflora on its roots and leaves. The metabolic products of the microorganisms influence the growth of root and shoot. On the leaf surfaces, non-symbiotic free nitrogen fixing organisms are found to fix nitrogen which is taken up by the plant. Microorganisms of the soil are more versatile in colonising the roots than those on the seed.

634.3893

Myrtaceous & Passifloraceous Fruits

1482.248 Bhandary, Raghunath Kudoor. Studies on the propagation of guava, Psidium guajava L. I. A. R. I., Delhi, Horticulture, 1963-67. Mukherjee, S. K., Head of the Division.

Guava propagation has been tried by veneer grafting, air layering and cuttings and the success obtained through improved techniques is quite encouraging. The various external and internal factors responsible for the success of these methods of propagation have also been studied. It has been found that the rooting ability of cuttings decreases with the age of the mother trees and increases when taken from the base of the tree.

634.4213

1483.249 Purohit, Arvind Ganesh. Investigation on the root system of guava, Psidium guajava L. I. A. R. I., Delhi, Horticulture, 1963-68. Mukherjee, S. K., Head of the Division.

An attempt is being made to standardize the method of determining the distribution of absorbing roots in guava by radioactive tracers. Investigations are also under way to study the seasonal variation in the distribution and density of the feeder roots by soil anger method and ascertain the correlation, if any, between the seasonal variation in the distribution of feeder roots and soil temperature, soil moisture, ground water table and shoot growth.

634.421

Anacardiaceous Fruits

1484.250 Adhikari, Satya Niranjan. Studies in alternate bearing in mango, var. Langra and the effect of amount of leaf surface on the fruit bud differentiation and auxin formation in shoots. Kalyani, Horticulture, 1964-68. Mallik, P. C., Reader and Head of the Department.

634.44

1485.251 Chacko, Elias K. Studies on some biochemical aspects of biennial bearing in mango, Manifera indica L. I.A.R.I., Delhi, Horticulture, 1963-67. R. N. Singh, Horticulturist.

The changes in the various nitrogenous constituents and naturally occurring growth substances in the bearing and non-bearing shoots of mango trees have been studied to pin point the particular factor controlling flowering in mango. Results show that an auxin like compound present during flower bud initiation in the extracts of bearing shoots has a definite role in the physiology of flowering in mango as it is completely absent in the non-bearing shoots.

634.44

1486.252 Ranvir Singh. Biennial bearing in mango : Studies on the apical dominance and inhibitors. I. A. R. I., Delhi, Horticulture, 1965-68. R. N. Singh, Horticulturist.

When in fruiting, the mango trees do not produce any growth. It is proposed to investigate this phenomenon and contribute to the knowledge of the factors governing the biennial bearing in mango.

634.44

1487.253 Shantha, Hoasakere Sricantiah. Respiration of mango fruit with special reference to climacteric rise. Mysore, Central Food Technological Research Institute, Mysore, 1964-68. Mathur, Prem Bihari, Scientist, Central Food Technological Research Institute, Mysore.

During ripening of the fruit, there is an accumulation of alphaketo glutaric and pyruvic acids, maximum concentration being reached at the climacteric maximum. The activity of malic enzyme also increases and reaches the maximum at the same time. Studies on the purification of malic enzyme are in progress.

634.44

1488.254 Subramanyam, H. Physiology of mango fruit with special reference to storage. Banaras, Agriculture, 1965-68. Choudhri, R. S., Principal, College of Agriculture, Varanasi and Mathur, P. B., Scientist, Central Food Technological Research Institute, Mysore.

At the optimum refrigerated temperature, mango fruit develops a physiological disorder of the nature of a 'scald' which is characterised by the development of brown coloured patches. This physiological disorder results in the deterioration of the taste, flavour and overall acceptability. The present study seeks to investigate the causes of this disorder.

634.44

Tree Fruits

1489.255 Ghosh, Saurindra Prasad. Studies on the physiology of sex expression of papaya, Carica papaya L. with a view to increase the fruit bearing population in the field. Kalyani, Botany, 1964-67. Sen, S. P., Reader and Head of the Department.

It is proposed to study the (i) nutritional control of sex expression under different levels of nitrogen, and phosphorus nutrition ; (ii) chemical regulation of sex expression by plant growth regulators ; (iii) metabolic changes associated with sex expression, nitrogen metabolism, nucleic acid metabolism, lipid metabolism, metabolism of endogenous growth regulating substances etc., and (iv) effect of different temperatures, defoliation, pruning etc., on sex expression.

634.651

Berries & Herbaceous Fruits

1490.256 Chattopadhyay, Tarun Kumar. Nutritional uptake in banana, Dwarf cavendish, under different levels of irrigation and manuring and the effect on growth and reproduction. Kalyani, Horticulture, 1964-68. Mallik, P. C., Reader and Head of the Department.

634.7722

1491.257 Kaul, Girdhari Lal. Studies on the effect of gibberellic acid on growth and fruiting of strawberry. I.A.R I., Delhi, Horticulture, 1963-67. Ranjit Singh, Horticulturist.

The effect of GA and CCC applied at different times under Delhi conditions on the growth, fruiting, yield and quality of strawberry has been studied. Over 200 per cent increase in yield has been obtained by the application of GA.

634.75

1492.258 Pathak, Ram Kripal. Effect of some external factors on fruiting of strawberry. I.A.R.I., Delhi, Horticulture, 1966-69. Ranjit Singh, Horticulturist.

The effect of photoperiod and some plant growth regulators on the fruit bud differentiation and fruiting of strawberry under Delhi conditions will be studied with particular reference to the effect of GA and CCC.

634.75

1493.259 Patil, Anantrao Venkat. Growth and development as affected by changes in sugars, auxins and gibberellin in berries of some seeded and seedless varieties. Nagpur, College of Agriculture, Nagpur, 1966-68. Gupta, Purushottam Kirorilal, Professor and Head of the Department of Horticulture, College of Agriculture, Nagpur.

Gulabi and Bangalore purple varieties have been selected for the study of the periodical changes in the growth and development of berries. The estimation of periodical changes of sugars, acids, auxins and gibberellins in the berries will be carried out with the sampled berries using thin layer chromatography. The different stages of development of berries will also be studied in relation to the periodical changes in the sugars, acids, auxins and gibberellins contents.

634.7

1494.260 Tiwari, Mahabir. Bionomics and control of the banana stemborer, Cosmopolities sordidus. Bhagalpur, B.A. College, Sabour, 1964-67. Lali, Bankey Sehwar, Professor of Entomology, B.A. College, Sabour.

It has been found that two species of weevils, namely, Odioporus longicollis Olivier and Cosmopolities sordidus Germar (Curculionidae, Coleoptera) injure the banana plants in the State. The banana varieties, such as, Bareli chinia, Chinia, Malbhog and Alpan are highly susceptible, while Rasthali, Martwan and Basrai local are highly resistant to the borer. The females lay eggs singly inside the bark of the tender stems and the grubs on hatching feed inside the stem. The 0.05% endrin spray gives the best response.

634.772976

Grapes

1495.261 Brahmandam, Narasimham. Studies on the induction of parthenocarpy polyploidy and mutations in mango anona and pomegranate. I.A.R.I., Delhi, Horticulture, 1964-68. Mukherjee, S. K., Head of the Division.

The research is directed towards the standardization of the most efficient technique for induction of tetraploidy in grape, and study of the performance of the tetraploids produced earlier. An attempt will also be made to produce triploids and evaluate their role in producing seedless strains of grape.

634.882

1496.262 Madhava Rao, V. N. Studies on certain aspects of pruning in the grape in relation to growth, flowering and fruiting. I.A.R.I., Delhi, Horticulture, 1965-68. Mukherjee, S. K., Head of the Division.

The investigations on Pusa seedless grape, Vitis vinifera L., are directed towards, (i) determining the optimum levels of severity of pruning, (ii) finding the time of fruit bud initiation, (iii) studying the influence of pruning levels on fruit bud initiation, and (iv) ascertaining the nutrient status (N, P & K) of the vines under two levels of fertilizer application in the 6-arm trellis system of training.

634.8842

1497.263 Moustafa, Saad Ahmad. Ampelography, floral biology and maturity standard of some grape cultivars. I.A.R.I., Delhi, Horticulture, 1963-67. Mukherjee, S. K., Head of the Division.

Detailed morphological data of about 120 cultivars, both young non-bearing and bearing vines, has heen collected to have a comprehensive description of these cultivars and to classify them with an identification key for each variety. Besides studying floral biology, an attempt is being made to fix the maturity standard for the grapes under study.

634.83

Crop Production

1498.264 Pareek, Om Prakash. Effect of some plant regulators on morphological, anatomical and physiological changes in the canes and developing berries of grapes, Vitis vinifera L. I.A.R.I., Delhi, Horticulture, 1962-67. Randhawa, G. S., Deputy Agricultural Commissioner, Indian Council of Agricultural Research, Delhi.

It is proposed to study the chemical changes in grapecanes to postulate their interrelations and their relation with fruitfulness. The other aspect of the study will deal with the morphological and anatomical changes brought about by plant regulator treatments during grape maturation and in the following seasons.

634.882

1499.265 Rane, Dattatraya Appa. Effect of certain root stocks on the growth and yield of some important grape varieties of Maharashtra State. Nagpur, College of Agriculture, Nagpur, 1964-69. Gupta, Purushottam Kirorilal, Professor and Head of the Department of Horticulture, College of Agriculture, Nagpur.

Some excellent grape varieties, like Gulabi, Bangalore purple and Thompson seedless, are shybearers and the first two varieties have uneven berry size. The ripening of the berries is also uneven. Root stocks have been observed to exercise great influence on the growth, yield, fruit size, shape, colour etc., in various fruit crops. An experiment has been designed to study the effect of vigour of growth of Anab-e-Shahi, Selection-7 etc., using them as stocks.

634.882

1500.266 Uppal, Devinder Kumar. Studies on hybridization in grapes, Vitis spp., with special reference to induction of male sterility and metaxenia effects. I.A.R.I., Delhi, Horticulture, 1963-67. Mukherjee, S. K., Head of the Division.

634.8823

Horticulture

1501.267 Patil, Venkanagouda Shivanagouda. Forecasting consumptive use of water by crops. I.A.R.I., Delhi, Agronomy, 1965-68. Dastane, N. G., Agronomist.

The effect of advective energy is being studied on water use by vegetable crops. The effect of degree of plant cover and stage of crop growth on consumptive use of water is also being investigated.

635

1502.268 Sinha, Udai Narain. Management of saline soils with high water table in relation to vegetable crops. I.A.R.I., Delhi, Agronomy, 1964-67. Bains, S. S., Head of the Division.

The effect of doses of nitrogen and methods of planting on the yield and composition of three varieties of radish and cabbage on saline soil with high ground table is being studied.

635

Edible Tubers & Bulbs

1503.269 Bhatnagar, Mahendra Kumar. Studies on the anthracnose disease of yam, Dioscorea alatal. Udaipur, S. K. N. College of Agriculture, Jobner, 1965-67. N. Prasad, Dean, S. K. N. College of Agriculture, Jobner.

It is proposed to study the variability in morphology and pathogenicity of the causal organism, physiology of the parasite, varietal susceptibility, perennation of the pathogen and recurrence of the disease, and epidemiology and curative measures.

635.2394

1504.270 Mahendra Pratap Singh. Soil fertility and plant population relationship in potato. J. N. K. V., Jabalpur, Govt. Agricultural College, Rewa, 1959-67. S. M. Singh, Professor of Horticulture, B. R. College, Agra.

The object of the research is to find out the extent to which the plant population can be increased with an increase in the fertility of the soil and get the highest economic yield of potato under the conditions of Rewa, M. P.

635.2158

Edible Leaves, Flowers & Stems

1505.271 Dharam Pal Singh. Some genetical studies in cauliflower. I.A.R.I., Delhi, Horticulture, 1966-69. Vishnu Swarup, Geneticist--Floriculture.

Early and medium maturing varieties of cauliflower are under investigation. The aim is to study the effect of inbreeding, extent of self-incompatibility present, heterosis, combining ability, inheritance of polygenic characters, heritability, gene effects, and components of heterosis. It is also proposed to evolve promising varieties of early and medium maturing groups.

635.35

Edible Fruits & Seeds

1506.272 Ganesh Singh. Nutritional studies on okra, Abelmoschus esculentus, L. moench. Banaras, Agriculture, 1966-68. Jai Ram Singh, Reader, College of Agriculture, Varanasi.

The research primarily deals with the role of various major and minor elements specially selected for this experiment under different forms of organic as well as inorganic manuring in field and pot. The study is mainly confined to the growth, flowering, fruiting behaviour of plants and fruit analysis.

635.648

1507.273 Sachan, Sheo Charan Prasad. Studies on heterosis, combining ability and inheritance of economic characters in watermelon, Citrullus lanatus, Thunb manf. Udaipur, S. K. N. College of Agriculture, Jobner, 1966-68. Prem Nath, Reader in Horticulture, S. K. N. College of Agriculture, Jobner.

Hundreds of indigenous strains and exotic varieties have been collected and purified for the particular character. The lines with the economic characters have also been selected and the possible crosses between the indigenous pure lines and the exotic varieties are being made to study the hybrid vigour and the combining ability.

635.615

Squashes & Pumpkins

1508.274 Babel, Yaswant Singh. Effect of plant regulators and mineral nutrients on certain physiological aspects of sex and fruiting behaviour in bottle gourd, Lagenaria siceraria (Molina) standl. I. A. R. I., Delhi, Horticulture, 1965-68. Choudhury, B., Vegetable Breeder.

It has been observed that nutrient elements, like boron, calcium and iron at quite low concentrations can modify the sex in bottle gourd. They increase the number of female flowers and fruit yield in the same way as MH and TIBA at 50 ppm. The effect of boron at 3 ppm particularly has been found to be very promising. Further studies with more concentrations of the chemicals and more combinations are in progress.

635.62

1509.275 Dhillon, Hakam Singh. A correlative study of chromosomes and changes in endogenous substances in relation to sex expression in Cucurbitaceae. Punjab Agrl., Genetics, 1964-67. Kalia, H. R., Dean, College of Agriculture, Palampur.

Cucurbitaceae offers an excellent material for the understanding of sex mechanism. Lagonaria siceraria has been chosen for the study and it is proposed to correlate the genetic variations of sex expression with quantitative changes in some of the intracellular products, such as, auxin, ascorbic acid etc.

635.622

1510.276 Kangjam Sanajaoba Singh. Induction of seedless fruits in cucurbits by means of hormone treatment. Gauhati, Agrl. Botany, 1964-67. Narahari Das, Professor and Head of the Department.

Experimental results have shown that seedless fruits can be induced in many cucurbitaceous crops, like pumpkins, sponge gourd, ridge gourd, cucumber, watermelon, bitter gourd, bottle gourd, trichosanthes dioca, momordica dioca, and snake gourd, by means of the plant growth substances viz., a-naphthaleneacetic acid, indolebutyric acid, a-naphthaleneacetamide and indoleacetic acid. The paste method has proved superior to the aqueous spray in most cases. By means of the application of these chemicals, the possibility of sex reversal has also been studied.

635.6223

Cucumbers

1511.277 Narendra Singh. Effect of plant regulator sprays on some physiological aspects of sex and fruiting behaviour in cucumber, Cucumis sativus. I. A. R. I., Delhi, Horticulture, 1964-67. Choudhury, B., Vegetable Breeder.

Experimental results show that amongst all the treatments, maleic hydrazide 100 ppm. spray at two leaf stage gives maximum number of female flowers, fruit number and ultimate yield per plant under different climatic conditions viz., at the I. A. R. I. field, Jumna River bed and at Katrain, Kulu Valley. The next beneficial treatment is GA-10 ppm, MH-200 ppm. MH-100 considerably increases the uptake of calcium and nitrogen.

635.632

1512.278 Srivastava, Vijai Kumar. Exploitation of hybrid vigour and inheritance of fruit characters in Momordica charantiya Linn. Udaipur, S. K. N. College of Agriculture, Jobner, 1965-67. Prem Nath, Reader in Horticulture, S. K. N. College of Agriculture, Jobner.

The strains of bitter gourd have been collected from all over the country. Each collection has been purified for a particular character. The diallel cross among the pure lines is being made. Studies on the hybrid vigour and combining ability between the large and small types will also be made.

635.63

Tomatoes

1513.279 Choubey, P. C. Study of factors affecting fruitset and quality of tomato. J. N. K. V., Jabalpur, Horticulture, 1964-67. Jyotishi, R. P., Professor and Head of the Department.

The effect of different levels of nitrogen together with foliar applications of boron and zinc, temperature and application of growth regulating substances is under study.

635.6422

1514.280 Joshi, Gyanesh Chandra. Breeding tomato resistant to leaf-curl virus. I. A. R. I., Delhi, Horticulture, 1965-68. Choudhury, B., Vegetable Breeder.

The esculentum varieties and the related wild species are being screened for resistance by grafting and by white flies, Bemisia tabaci, under controlled conditions. The hybridization will also be undertaken for the incorporation of resistance genes.

635.64298

1515.281 Mathai, P. J. Breeding and studies on inheritance of tobacco mosaic virus resistance in tomato. I. A. R. I., Delhi, Horticulture, 1964-68. Choudhury, B., Vegetable Breeder.

The research comprises interspecific hybridization for transferring the resistant gene from the wild species to the cultivated L. esculentum varieties, and a study of the nature of resistance and inheritance of resistance in certain lines. The interspecific crosses with L. peruvianum have not yielded any hybrid seedlings. However, hybrid seeds of L. esculentum x L. hirsutum have been obtained. Two L. esculentum lines, namely, P22 and P13 have been found to be resistant. The F_1's, F_2's reciprocals, and backcrosses seeds have also been obtained by crossing with a susceptible but desirable line, viz. Sh 120.

635.64298

Eggplants

1516.282 Deshmukh, Suresh Narayan. Investigation on carbaryl residue in brinjal plants. I. A. R. I., Delhi, Entomology, 1965-67. Rattan Lal, Toxicologist.

The object of the research is to investigate the persistence of biological activity of carbaryl residue on brinjal plants from the point of view of borer control and dissipation of the residue to safe level. The bioassay results will be verified by chemical analysis.

635.4699

1517.283 Mitra, Prakash Chandra. A study of the relative efficiency of nitrogen and phosphorus on the growth, yield and nutrient uptake of brinjal, Solanum melongena L. I. A. R. I., Delhi, Agronomy, 1965-68. De, Rajat, Agronomist.

An experiment has been planned to study the effect of nitrogen and phosphorus at varying levels and their interactions on the yield of brinjal. The fertilizers will be applied by two methods, through soil and foliage. The relative efficiency of the various factors on the mineral uptake by the brinjal plant will also be studied.

635.6462

1518.284 Rajendran, R. Study on hybrid vigour in brinjal, Solanum melongena L. I. A. R. I., Delhi, Horticulture, 1964-70. Vishnu Swarup, Geneticist—Floriculture.

The aim of the investigations is to study the genetics of heterosis and inheritance of polygenic characters in brinjal. Eight true breeding varieties, their F_1 hybrids, F_2 and backcross generations have been selected for study. The combining ability, both general and specific, heritability, estimation of gene effects and components of heterosis will be studied in detail.

635.64623

1519.285 Umrani, Narayan Krishnaji. Response of brinjal to N, P and irrigation intervals for specifying economic optimum from the resulting response surfaces. Nagpur, College of Agriculture, Nagpur, 1965-67. Khot, Bapusaheb Devendra, Lecturer in Agronomy, College of Agriculture, Nagpur.

An experiment is being conducted on brinjal with N & P—0 to 200 lb/a, and irrigation intervals based on quantity of water evaporated, 15 to 75 mm., from open pan evaporimeter. The economic analysis of the resulting yield surface under varying price situations will also be worked out.

635.64658

Legumes

1520.286 Bhattacharya, Anoop Kumar. Nutritional behaviour of Trogoderma granarium Everts on leguminous seeds with special reference to growth inhibition in lentil, Lens esculenta, and French bean, Phaseolus vulgaris. I.A.R.I., Delhi, Entomology, 1963-67. Pant, N. C., Professor.

Tests have been carried out to investigate the reasons for poor growth of Trogoderma on lentil and French bean. Both contain heat and labile inhibitors. French bean is deficient in utilizable carbohydrates and lentil lacks enough sterols. Wheat and, to a lesser degree, green gram, and glucose and yeast show antagonism to inhibitors.

635.65

1521.287 Bhattacharyya, Sunilkumar. Cytogenetics of Indian pulses. Calcutta, Botany, 1958-67. Independently.

635.65

1522.288 Chakraborty, Tapan Kumar. A study on the effects of pre and post emergence application of herbicides on soil microflora, weed control and seed production in peas. I. A. R. I., Delhi, Agronomy, 1964-67. Mani, V. S., Agronomist.

Investigations have been undertaken to study the effect of herbicides on soil microflora. A pre emergence application of linuron—0.56 kg/ha, and propazine—0.34 kg/ha, in peas, Var. bonneville, had no measurable effect on total bacterial counts. In vitro tests have, however, shown high tolerance of microflora to these herbicides.

635.6529954

1523.289 Jha, Harinandan. Studies on salinity tolerance of peas. I. A. R. I., Delhi, Agronomy, 1965-68. Bains, S. S., Head of the Division.

Studies are being made on the response of different varieties of peas to levels of phosphate placed at different depths under saline soil with high ground water table.

635.65

1524.290 Kalloo. Effects of gamma irradiation on pea. Banaras, Agriculture, 1966-68. Das, K., Reader, College of Agriculture, Varanasi.

The study has been undertaken to induce some chromosomal translocation in pea by gamma rays—cobalt 60. After homozygous translocation lines are established, attempts will be made to identify the chromosomes involved and determine the break points. Linkage maps with known marker genes will be studied. It is also proposed to screen out useful mutants in G_2 and later generations.

635.656

1525.291 Karivaratharaju, T. V. Gowder. Investigation on the photosynthetic contribution of pod in seed development in peas. I. A. R. I., Delhi, Botany, 1965-68. Bharadwaj, S. N., Asstt. Professor of Plant Physiology.

In peas, pods (fruits) remain green for nearly three weeks and their covers (fruit walls) are [provided with stomata. It is proposed to investigate whether the current photosynthates from the pod migrate to the seeds adopting radio-tracer techniques, and to assess the photosynthetic contribution of pod in development of the seeds.

635.65

1526.292 Khadilkar, Bhalachandra Trimbak. Exploration for the economic improvement of mug, Phaseolus aureus, crop in Maharashtra State. Nagpur, Govt. College of Agriculture, Akola, 1964-67. Gopalkrishna, N., Principal, Govt. College of Agriculture, Akola.

The object of the research is to explore the mug, Phaseolus aureus, crop for economic improvement by studying the inheritance of as many as fifty characters, and effecting interspecific cross with udid, Phaseolus mungo. The crossing will be done after studying all the parental characters.

635.6522

1527.293 Koranne, Keshao Devidas. Biometrical investigations in relation to genetic improvement of yield in garden peas, Pisum sativum. I. A. R. I., Delhi, Botany, 1963-67.

H. B. Singh, Head of the Division of Plant Introduction.

The research comprises a study on the nature of association between different characters, mode of gene action in different quantitative characters, and combining ability. For this purpose, the data on F_1, F_2 and F_3 along with their nine parents is being analysed.

635.65658

1528.294 Krishnan, R. Pachytene analyses and hybridization studies in Phaseolus. I. I. T., Kharagpur, Agrl. Engineering, 1961-67. De, Deepesh N., Asstt. Professor.

The chromosomal relationship of Phaseolus aureus and P. mungo has been realised from comparative karyology at pachytene and detailed cytological studies in hybrid from pachytene onwards. The allotetraploid origin for an unidentified Phaseolus species from Brazil has been established on the basis of pachytene karyology, meiosis of its diploid progenitor and nucleolar-organizer suppression. Neither aureus nor mungo are its parents.

Nucleus. 8 ; 1965 : p. 7.

635.65223

1529.295 Prabhu Nath Singh. Agronomic studies on lentil, Lens esculenta. Banaras, Agriculture, 1965-68. Misra, N. M., Lecturer, College of Agriculture, Varanasi.

Four field trials have been conducted to explore the (i) Varietal performance in relation to irrigation levels ; (ii) Sowing time in relation to irrigation levels ; (iii) Effect of N. P. K. application singly and in combination ; and (iv) Best method of P_2O_5 placement in relationship to irrigation levels. Three field trials have been designed to evaluate the varietal performance at different fertility levels and time of application of fertilizers under drought, semi-drought and irrigated conditions. Data has been collected for morphological, maturity and yield characters for statistical computation, and the chemical analysis is in progress.

635.658

1530.296 Rath, Gora Chand. Studies on Cercospora leaf spots of Phaseolus spp. I. A. R. I., Delhi, Mycology & Plant Pathology, 1966-69. Grewal, J. S., Plant Pathologist.

The object of the study is to survey the intensity and severity of Cercospora leaf spots of mung—Phaseolus aureus, urid—P. mungo, and beans—P. vulgaris and P. lunatus. Studies on their etiology with special reference to the mode of perpetuation and control measures will also be undertaken.

635.65294

1531.297 Shukla, Devi Shankar. Studies on gram-wilt caused by Ozonium texanum var parasiticum. Bhagalpur, B. A. College, Sabour, 1964-66. Misra, Ayodhya Prasad, Professor of Plant Pathology, B. A. College, Sabour.

Gram, Cicer arietinum L., is the most important pulse crop in India and occupies an area of 22.7 million acres. It is severely affected by Ozonium texanum Neal and Wster var. parasiticum Thirum., causing wilt. No systematic work on this disease has sofar been done anywhere. Detailed studies have, therefore, been undertaken on the factors affecting variability in the development of the disease and effect of various soil amendments and chemicals as control measures.

635.65794

1532.298 Sur, Sekhar Chandra. Mutation studies on pulses. Calcutta, Agriculture, 1960-67. Sen, Subrata, Lecturer.

635.65

Floriculture

1533.299 Maitra, Syamal Chandra. Light and electron optical studies on the endosperm. I. I. T., Kharagpur, Agrl. Engineering, 1964-67. De, Deepesh N., Asstt. Professor.

The endosperm of Cocos nucifera and Porasus flabellifer has been studied with the aid of light and electron microscope from fertilization to mature state of the embryo when horney endosperm is formed. Other cytogenetical and biochemical aspects are under investigation.

635.9345

1534.300 Mukhopadhyay, Rabindra Nath. Flower colour inheritance in Hibiscus. Kalyani, Cytogenetics & Plant Breeding, 1966-69. Sen, Subir, Reader.

The object of the research is to study the quantitative inheritance of flower pigments of different species of Hibiscus and their hybrids. Accordingly, quantitative estimations of anthocyanidins and a few flavones have been done in the parent plants by colorimetric method. Intervarietal crosses with different flower colour patterns are being attempted.

635.93317

ANIMAL HUSBANDRY

1535.1 Thapliyal, Tara Devi. Animal husbandry in ancient India. Banaras, Ancient Indian History, Culture & Archaeology, 1966-68. Lallanji Gopal, Reader.

Besides casual references in literary and epigraphic sources, information on animal husbandry is plentiful in several texts devoted to the subject. The present study aims at collecting material from diverse sources and analysing it in the light of the methods and techniques of the science of animal husbandry.

636.00954

Veterinary Science

1536.2 Chawla, Sudarshan Kumar. Studies on pleuropneumonia like organisms of caprine and bovine origin. Agra, Indian Veterinary Research Institute, Izatnagar, 1963-67. Sharma, Girdhari Lal, Head of the Department of Bacteriology & Virology, Indian Veterinary Research Institute, Izatnagar.

The investigation primarily deals with the antigenic pattern and serological behaviour of PPLO. Experimental results suggest that the organism can be fractionated into its components which have serological diagnostic significance. The antigenic relationship between three PPLO species and between PPLO and L-forms has also been studied and different CCPP vaccines are being assessed.

636.0896241

1537.3 Jatkar, Prabhakar R. Pathogenesis of anaemia in trypanosome infection. Udaipur, College of Veterinary & Animal Science, Bikaner, 1965-67. Mohan Singh, Dean, College of Veterinary & Animal Science, Bikaner.

The pathogenesis of anaemia trypanosome infections is being investigated in relation to haematological, serological and biochemical changes in the serum of the infected animal. Serological studies with special reference to the presence of autoantibodies and other factors responsible for anaemia in this disease are in progress.

636.0894533

1538.4 Sharma, Kailash Nath. Physico-chemical and immunological studies of Asia 1 foot and mouth disease virus.

Udaipur, College of Veterinary & Animal Science, Bikaner, 1966-68. Mohan Singh, Dean, College of Veterinary & Animal Science, Bikaner.

It is proposed to study the (i) Adaptation of FMD. V.—Asia 1 strain in heterologous host i.e. mice and chicken embryo to ascertain the relationship between antigenicity, attenuation and virulence ; (ii) Physico-chemical properties of passaged and original virus ; and (iii) Immunological response in cattle against both the types of viruses and their cytopathogenic effects on cell cultures.

636.08960194

Blood Serums

1539.5 Mehrotra, Prithvi Nath. Studies on antibody formation in Buffaloes, Bos bubalis. Udaipur, College of Veterinary & Animal Science, Bikaner, 1965-67. Mohan Singh, Dean, College of Veterinary & Animal Science, Bikaner.

Experiments are being conducted on antibody response as measured by various serological tests after inoculating tetanus toxoid, streptococcal antigen, and H. S., B. Q., and brucella vaccines in buffaloes. Electrophoretic studies on the serum proteins in response to the antigenic stimulations will also be taken up by inoculating the above antigens.

636.089537

1540.6 Mishra, R. R. Genetic studies on the antigenic factors in the blood of Indian grey cattle breeds. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-68. Prabhu, S. S., Head of the Department of Animal Genetics, Indian Veterinary Research, Institute, Izatnagar.

It is proposed to study the incidence and mode of inheritance of 10 antigenic factors of blood in the grey breeds of cattle, like Haryana and Tharparkar.

636.0895373

1541.7 Natarajan, Chittatoor. Studies on Coryne bacteria of animal origin with special reference to toxins and pathogenicity. Agra, Indian Veterinary Research Institute, Izatnagar, 1965-67. Dhanda, Mulk Raj, Director, Commonwealth Bureau of Animal Health, Weybridge, Surrey, England.

The methods for optimal toxin production in Coryne bacterium pyogenes and C. pseudotuberculosis have been standardized. Results obtained show that both these toxins are enzymic in nature. The latter can be toxoided only after three weeks formalinisation. A vascular permeability factor has also been recognized in this toxin and its pathogenic action is under study.

636.0895373

Bacterial & Viral Diseases

1542.8 Gajindar Singh. Studies on serological diagnosis of chronic bacterial infections. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-68. Sharma, Girdhari Lal, Head of the Department of Bacteriology & Virology, Indian Veterinary Research Institute, Izatnagar.

It is proposed to examine the various serological and hypersensitivity tests or their modifications for their efficacy in detecting the disease accurately and expeditiously. The reliability of various tests employed will be assessed on the basis of results obtained in clearly healthy and known infected animals.

636.089692

1543.9 Gurkirpal Singh. Rinderpest studies on antibody level. Bombay, Indian Veterinary Research Institute, Izatnagar, 1965-67. Gulrajani, T. S., Head of the Department of Biological Products, Indian Veterinary Research Institute, Izatnagar.

The object of the research is to determine an immunogenic response after vaccination or infection for evaluation of vaccination effect and epizoological investigations. To achieve this, blood specimens collected at intervals will be subjected to serological tests, like complement fixation test, conglutinating absorption test etc. Emphasis will be laid on correlating the results of different tests and linking them to problems of immunity.

636.089692

1544.10 Pandurangarao, Chengalvala China. Studies on staphylococci of bovine mammary origin with special reference to chemotherapy and immuno-prophylaxis. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-69. Sharma, Girdhari Lal, Head of the Department of Bacteriology & Virology, Indian Veterinary Research Institute, Izatnagar.

The strains of staphylococci recovered from bovine udder will be tested for in vitro and in vivo sensitivity to different chemotherapeutic agents. These strains will be serotyped and tested for immunogenic diffusible products. Suitable vaccines will be prepared and tested in lactating goats and bovines by parenteral and intramammary routes.

Studies on the in vitro sensitivity of Staphylococcus aureus strains of bovine mammary origin to different antibiotics. Ind. Vet. Jour. 43 : p. 181-190.

636.089692

1545.11 Sidheshwar Prasad. Studies on African horse-sickness virus. Magadh, Indian Veterinary Research Institute, Izatnagar, 1965-67. Gulrajani, T. S., Head of the Department of Biological Products, Indian Veterinary Research Institute, Izatnagar.

The neurotropic mice adapted to horse-sickness virus types 1, 3 and 6 have been included for adapting them into developing chick embryo for the supply of alternative vaccine. Forty serial passages have been planned with each of the three types and it is proposed to study the antigenic response of the chick embryo vaccine in ponies through various serological tests.

635.089692

Venereal & Zoogenous Diseases

1546.12 Palit, Arabinda. Studies on leptospirosis. Agra, Indian Veterinary Research Institute, Izatnagar, 1964-67. Sharma, Girdhari Lal, Head of the Department of Bacteriology & Virology, Indian Veterinary Research Institute, Izatnagar.

The assessment of diagnostic techniques has indicated that microscopic agglutination lysis and complement fixation tests are sensitive. Crude polysaccharide extracted from few serotypes elicit antibody production in rabbits and work as serotype specific complement fixing antigen. The screening of 283 animals has shown antibodies against Leptospira pomona, Leptospira poi and Leptospira australis in some animals.

636.089695

1547.13 Sen, Ganga Prasad. Studies on speciation of the Indian strains of Brucella and on brucellaphages. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-70. Sharma, Girdhari Lal, Head of the Department of Bacteriology & Virology, Indian Veterinary Research Institute, Izatnagar.

Due to the prevalence of Indo-Indonesian variants of Brucella abortus/melitensis in this country as determined by conventional methods, the speciation of Indian strains of Brucella is being studied by bacteriophage lysis and oxidative metabolic tests. Studies on brucellaphages include search for the phages from laboratory cultures and animal faeces, and their characterization from lysogenicity, cross-serological activities and nucleic acid contents.

636.089695

Horses

1548.14 Buduk, Dattatraya Pralhad. Studies in changes occurring in horse blood during immunization and bleeding. Bombay, Haffkine Institute, Bombay, 1965-68. Rao, S. S., Asstt. Director, Haffkine Institute, Bombay.

The changes in the antibody proteins and red blood cells (RBC) have been followed in horses during immunization and repeated bleeding. Experiments have also been conducted to study the effect of transfusion of RBC. The antibody response of horses when diphtheria toxoid is injected along with different adjuvants is being studied. The results will be analysed according to the breed of horses, their blood groups etc.

636.1

Cattle

1549.15 Chhabra, A. D. Designing of age correction factors for Haryana cattle. Punjab Agrl., Animal Husbandry, 1964-67. Sundaresan, D., Dean-cum-Professor of Animal Science.

The study is based on breeding records on Haryana herd from the Govt. Livestock Farm, Hissar. The age correction factor will be designed on the basis of multiplicative, absolute additive and additive herd level and their relative efficiency compared. On the basis of this, a suitable age correction factor will also be designed for use in Haryana herd in the country.

636.20821

1550.16 Daya Singh. Estimation of certain parameters and their use in the construction of a selection index in Haryana cattle. Punjab Agrl, Animal Husbandry, 1964-67. Sundaresan, D., Dean-cum Professor of Animal Science.

The study is based on records on Haryana herd from the Govt. Livestock Farm, Hissar. The conventional method of selection in cattle is based on one's own production records. Greater genetic advantage can be obtained by introducing other economic characteristics of importance and also getting information about them from one's relatives. Selection indices combining various characteristics will be made and tested for efficiency. On the basis of this information, recommendations will be made for a suitable index for use in Haryana herds in the country.

636.2081

1551.17 Naidu, K. N. Genetic assessment of phenotypic traits employed in judging Indian breeds of cattle. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-68. Prabhu, S. S., Head of the Department of Animal Genetics, Indian Veterinary Research Institute, Izatnagar.

It is the study of the changes in the phenotypic assessment of a large number of items of body conformation of select number of animals, belonging to a selected number of breeds, as observed after an interval of six months. Their genetic basis will also be assessed.

636.20811

1552.18 **Ohri, Satya Pal.** Sources of variation in the performance of Rathi herd. Udaipur, College of Veterinary & Animal Science, Bikaner, 1965-67. Mohan Singh, Dean, College of Veterinary & Animal Science, Bikaner.

The object of the research is to study the performance of Rathi cattle in relation to body conformation, type score etc., body weight at different ages, and milk yield during 1-4 lactations. The growth rate of male and female calves, dry periods between different lactations and calving intervals, and the effects of various factors on milk yield of Rathi as well as cross between Rathi and Sahiwal breeds will also be studied.

636.20821

1553.19 Pandey, Jagdish Narain. Physiological responses on feeding akra, a mixture of Vicia sativa and Vicia hirsuta, to ruminants. Agra, Indian Veterinary Research Institute, Izatnagar, 1965-67. Pal, A. K., Head of the Department of Physiology, Indian Veterinary Research Institute, Izatnagar.

The introduction of hitherto unutilized cheap feed, akra, a mixture of Vicia sativa and Vicia hirsuta, has indicated the presence of 31% to 33% crude protein, 25% digestible crude protein and 70% total digestible nutrients as also 16 amino acids including the essential ones. Better growth rate in Haryana calves and Malpura lambs and better digestion and utilization of protein and optimum NH_3 production in rumen have also been indicated with considerable economy in feeding.

636.2086

1554.20 Saxena, V. B. DNA content of bovine semen and its relation to fertility and semen characteristics. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-68. Gajjan Singh, Indian Veterinary Research Institute, Izatnagar.

The DNA content of semen of Haryana and Murrah will be determined, its characteristics examined and the relation between semen, DNA content and fertility investigated.

636.20821

Bison

1555.21 Agarwal, S. P. Variations in the gonadotrophic hormone levels of anterior pituitary during oestrus cycle in buffaloes. Patel, A. N. S. Institute of Agriculture, Anand, 1965-69. Buch, N. C., Senior Scientific Research Officer, Ford Foundation Project, A. N. S. Institute of Agriculture, Anand.

To gain a better understanding of the activity of anterior pituitary gland in buffaloes, the normal cycling buffalo heifers will be sacrificed in different phases of oestrus cycle and the gonadotrophin contents bioassayed in the anterior pituitary. The correlation of hypophyseal gonadotrophins with the ovarian activity will also be determined.

636.292

1556.22 Bhupal Singh. Studies on certain aspects of the metabolic activity and livability of buffalo spermatozoa in relation to climate and semen diluents. Agra, Indian Veterinary Research Institute, Izatnagar, 1964-67. Sadhu, D. P., Professor of Physiology & Nutrition, Bengal Veterinary College, Calcutta.

The artificial insemination programme in buffaloes has not made much headway in India mainly due to the poor preservability of semen of this species at refrigerator temperature. This investigation aims at finding out the reasons of early deterioration of semen quality and suggesting methods for improvement of the same.

636.292

1557.23 Memon, Gafurbhai N. Study on functional relationship of corpus botany and anterior pituitary dairy estrous cycle in Surti buffalo. Patel, A. N. S. Institute of Agriculture, Anand, 1964-67. Patel, B. M., Research Officer, A. N. S. Institute of Agriculture, Anand.

The progesterone, ascorbic acid and cholesterol will be estimated from buffalo CL during different stages of estrous cycle and their relationship with FSH and LH activity of AP and plasma ascorbic acid and cholesterol will also be investigated.

636.292

1558.24 Pant, K. P. Cytomorphological studies on the spermatozoa of buffalo bulls. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-68. Mukherjee, D. P., Sperm Morphologist, Department of Animal Genetics, Indian Veterinary Research Institute, Izatnagar.

The object of the research is to determine the variation in biometry of spermatozoa of 4 breeds of buffalo in different seasons and establish a correlation between this and the blood picture.

636.292

Sheep & Goats

1559.25 Hadi Ahmadpuri, Mohammad Abdul. Study of reproduction in farm animals : Biometrical contribution on development of uterus and the conceptus at different stages of pregnancy in goats. Bombay, Bombay Veterinary College, Bombay, 1965-67. Indpendently.

The study entails assessment of biometrical norms of different components of uterus of Indian goats in non-gravid state and their comparison with the growth rate and the changes taking place in the gravid uterus, foetus, placenta and placental fluids etc., at different stages of gestation period.

636.39082

1560.26 Raina, Brij Lal. Studies on the blood groups of Indian sheep. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-68. Prabhu, S. S., Head of the Department of Animal Genetics, Indian Veterinary Research Institute, Izatnagar.

The blood group antigenic factors in sheep have been isolated and prepared with the help of the reagents. Their incidence in a few well-known breeds of sheep in India will be studied.

636.385

Poultry

1561.27 Chaturvedi, Dhruva Kumar. Studies on biological availability of fish meal proteins for growing chicks. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-68. Mukherjee, R., Nutritionist, Poultry Research Department, Indian Veterinary Research Institute, Izatnagar.

The study deals with the estimation of (i) proximate principles in different fish meals and feeds, (ii) amino acids in fish meals by column chromatography using amino acid analyzer, (iii) available lysine in fish meals by chemical method, and (iv) gross protein value of fish meals using male chicks. The possibility of using Tribolium confusum larvae as an indicator of protein quality in fish meals is also being explored.

636.50876

1562.28 Nagpal, M. L. Studies on the chemical and biological evaluation of some poultry feed stuffs and the nature of inhibitor in guar meal, Gyamopsis tetragonoloba. Punjab Agrl., Chemistry-Biochemistry, 1964-67. Bhatia, Iqbal Singh, Professor and Head of the Department.

Some of the poultry feeding stuffs are being analysed for their amino acid composition and biological availability. The investigations on the characterization of growth inhibitors in guar meal, a by-product

of guar gum industries, are being conducted so as to make it possible to utilize it as a poultry feed. The isolation of various protein fractions of guar meal, and their biological and chemical studies are also under way.
636.5085

1563.29 Rao, Kishanlal. A study of Escherichi coli infection in chicken. Udaipur, College of Veterinary & Animal Science, Bikaner, 1965-67. Mohan Singh, Dean, College of Veterinary & Animal Science, Bikaner.

It is proposed to study E. coli infection in chicken including isolation and typing of E. coli strains recovered from faeces and rectal swabs of chicken. Studies will also be made on blood picture and pathogenicity including histopathological examination of the tissues of the naturally as well as artificially infected birds.
636.5089696

1564.30 Sadagopan, V. R. Studies on determination of optimum metabolizable energy-protein ratio of poultry rations for growing egg production. Agra, Indian Veterinary Research Institute, Izatnagar, 1966-68. Bose, S., Head of the Department of Poultry Research, Indian Veterinary Research Institute, Izatnagar.

The object of the investigation is to find out optimum requirement of energy-protein ratio for better growth and egg production. A number of experimental rations having different energy-protein levels are being tested for growth in growing white leghorn chicks. The energy values of the experimental rations have been widened by the additions of animal fat, molasses and rice polish.
636.508557

Dairy Industry

1565.31 Dave, Jayantilal M. Development of a strain of Streptococcus lactis suitable for preparing quality cheese from buffalo milk. Patel, Plant Pathology & Bacteriology, 1966-69. Desai, M. V., Professor and Head of the Department.

In developing dairy industry in India, making good cheese from buffalo milk is a problem. The proteolytic disability of the presently available starter in bringing about the desired pattern of fermentation in buffalo milk protein is suspected to be the prime cause. It is believed that it can be developed by screening or producing a mutant strain of Streptococcus lactis by various irradiation treatments. Experiments are being made in this direction.
637.3

Fishing

1566.32 Pantulu, V. R. Contributions to the study of the biology and fishing of some fishes. Calcutta, Central Inland Fisheries Research Institute, Barrackpur, 1958-67. Bhimachar, B. S., Director, Central Inland Fisheries Research Institute, Barrackpur.

639.2

HOME SCIENCE

Applied Nutrition

1567.1 Chandrasekaran, K. N. Effect of a school lunch programme on the physical, nutritional and biochemical status of 7-12 year old children. Baroda, Foods & Nutrition, 1964-67. Rajalakshmi, Ramkrishnan, Reader.

Studies have been made of the effects of a school lunch on the physical, biochemical and physiological status of malnourished school children. The lunch is being planned so as to correct the basic deficiencies in the home diet.

641.1

1568.2 Sail, Suresh Sitaram. Nutritional studies on school children. Baroda, Foods & Nutrition, 1965-67. Rajalakshmi, Ramkrishnan, Reader.

Studies have been made of the effects of a school lunch on the physical, biochemical and physiological status of malnourished school children. The lunch is being planned so as to correct the basic deficiencies in the home diet.

641.1

Proteins

1569.3 Balakrishnan Nair, Raman. Studies on the availability of essential amino acids and nutritive value of fish protein concentrates. Kerala, Central Food Technological Research Institute, Mysore, 1964-67. Parpia, Husain Ali Bhimjee, Director, Central Food Technological Research Institute, Mysore.

The destruction or inactivation of essential amino acids during processing and storage of fish protein concentrates leads to reduction in nutritive value. The basic causes for changes in the availability of amino acids and the nature of reactions involved are being investigated with the aid of model systems.

641.12

1570.4 Guttikar, Mankemika Nagesh. Biochemical and nutritional studies on processed foods. Bombay, Central Food Technological Research Institute, Mysore, 1963-67. Swaminathan, M., Chairman, Applied Nutrition and Ditetics

Discipline, Central Food Technological Research Institute, Mysore.

The nutritive value of processed protein foods based on blends of oilseed meals and legumes, and fortified with vitamins, minerals and limiting essential amino acids is being assessed by conducting experiments on albino rats and children. The value of the protein foods in the regeneration of tissue enzymes in protein depleted rats will also be assessed.

641.12

1571.5 Radhakrishnan, Mukkai, Ramakrishnaier. Studies on protein malnutrition. Bombay, Nutrition Research Laboratories, Hyderabad, 1961-67. Gopalan, C., Director, Nutrition Research Laboratories, Hyderabad.

Experiments have been conducted on animals to study the late effects of early malnutrition. They indicate that protein deprivation at early age-period for even a short duration permanently affects the size of the adult animals. Household methods of preparation of foods involving high temperatures significantly affect their nutritive value by reducing available lysine.

(1) Ind. Jour. Med. Res. 54 ; 1966 : p. 486-493; (2) ibid. 54 ; 1966 : p. 494-500 ; and (3) Ind. Jour. Biochem. 3 ; 1966 : p. 40-43.

641.12

Vitamins

1572.6 Maitra, Ratna. Nutritional studies on vitamin C. Calcutta, Biochemistry, 1964-67. Ghosh, J. J., Professor.

641.18

Foods & Foodstuffs

1573.7 Kunwar, Suresh Singh. Chemical and nutritional evaluation of some dry beans. Allahabad, Home Science, 1965-68. Pant, Radha, Head of the Department.

An investigation of the proteins, amino acids and biologically active components of some wild legumes to provide information necessary for the development of new and improved processes leading to their utilization in human and animal nutrition is in progress. The work includes chemical as well as biological experiments for their proper evaluation.

641.3565

1574.8 Rajagopalan Nair, Chellappan Pillai. Studies on some wild legumes. Allahabad, Home Science, 1966-69. Pant, Radha, Head of the Department.

The preliminary chemical analysis and fractionation of nitrogenous compounds in some wild non-cultivated legumes have been done and enzymic studies and characterization of the isolated proteins are in progress.

641.3565

1575.9 Tulsiani, Daulat Ram. Nutritive value of dry beans. Allahabad, Home Science, 1964-67. Pant, Radha, Head of the Department.

Five dry phaseolus seeds have been subjected to preliminary analysis with respect to their moisture, ash, minerals, vitamins, carbohydrates, fats and proteins. All these seeds are good sources of minerals, vitamins, carbohydrates and proteins. The isolation, precipitation and fractionation of nitrogenous constituents have been carried out. Albumin and globulin fractions have also been isolated in more or less pure form and subjected to qualitative and quantitative amino acid analysis. Animal nutrition experiments are under way.

641.3565

1576.10 Yadav, Nathu Ram. Studies on the nutritive value of some non-cultivated Indian legumes. Allahabad, Home Science, 1965-68. Pant, Radha, Head of the Department.

Attempts are being made to include non-cultivated legumes in animal and human nutrition. The preliminary chemical analysis with respect to their proteins, fats, carbohydrates, vitamins and minerals has been completed and the extraction, fractionation, isolation and characterization of the proteins are under way. Nutritional study on the isolated proteins will be conducted on animals and their biological value assayed.

641.3565

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